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SILENT FOCI OF LOCALIZED OSTEOMYELITIS

D. B. PHEMISTER, M.D.

CHICAGO

Localized pyogenic osteomyelitis occurs most often as a complication or sequel of a diffuse osteomyelitic lesion, although it may be the primary focus of bone infection. There is considerable variation in the symptoms that it produces. It usually begins acutely, with continuous pain in the involved region, followed soon by local tenderness, swelling and mild general symptoms of pyogenic infection. The local and general symptoms subside gradually in from one to three weeks, and may entirely disappear. More frequently, a slight local disturbance persists, and occasionally pus collects in the adjacent soft parts. After a period of quiescence, varying from a few weeks to a few months, there is usually a recurrence of symptoms, and this process may be repeated indefinitely unless proper surgical relief is given. Night pain is a common symptom during the periods of recurrence. Occasionally in primary localized osteomyelitis, the course from the onset is that of a chronic infection. The disease begins with dull pain in the region of involved bone and no general symptoms are complained of. The pain increases in intensity as time goes on and is apt to be more marked at night. There may be periods of improvement, but never complete subsidence of local symptoms. These symptoms may accompany osteomyelitis producing local destruction with cavity formation or that of the sclerosing type, in which there is bony thickening without appreciable absorption or cavity formation.

It is generally stated in the literature that the symptoms produced by minor foci of osteomyelitis may be slight, but I have found no statement to the effect that localized osteomyelitis (aside from a pocket about the root of a tooth) may begin silently and proceed to the stage of complete destruction of the bony area involved, with surrounding new bone formation, before there are any local symptoms whatsoever. This condition is rather astonishing when met with for the first time. It is apt to be found in patients in whom some focus of bone infection has remained active. The subsequent lesions may develop at any time, up to two or three years after the onset of the initial bone infection. There may be mild general symptoms in the absence of local symptoms, and the possibility of a silent focus should always be kept in mind when a patient with chronic pyogenic osteomyelitis presents the picture of a low grade infection, which is too severe to be explained by the findings at the seats of the known lesions. A recurrence at the site of a previous osteomyelitis may begin without local symptoms, and may proceed to the point of extensive absorption before pain is experienced. However, there may be mild general symptoms of infection, such as slight afternoon fever, malaise and lack of energy. The foci may exist for weeks or months before producing local symptoms. This has been shown by the extent of the lesions revealed by roentgenograms taken either before or immediately after the onset of local symptoms, and by roentgenographic observations of symptomless foci over long periods of time.

In all of the following cases except the last there were multiple silent foci, and various pictures of the condition were presented.

REPORT OF CASES

CASE 1.—M. V., a girl, aged 11, who entered the Presbyterian Hospital, Sept. 7, 1920, had severe staphylococcus osteomyelitis of the body and right lateral mass of the fifth lumbar vertebra, developing from an infected wound of the foot. Drainage through a dorsal incision three weeks after onset was followed by gradual improvement. Two months after onset, slight tenderness was noted over the mesial side of the upper portion of the shaft of the left humerus. There was no spontaneous pain. Tenderness persisted for two weeks, so she was brought for examination. Palpation revealed a swelling, and a roentgenogram (Fig. 1) showed evidences of cortical destruction and periosteal new bone along the mesial side of the upper 4 inches of the shaft of the humerus. At operation, granulation tissue and a small cortical sequestrum were found in the cavity beneath the periosteal new bone. The staphylococcus was grown on cultures. The lesion appeared to be considerably older than two weeks. Because of the extremely mild character of these symptoms, the parents were advised to bring the patient for examination immediately on complaint of pain in any part of the body. Five and one-half months from the onset, she was readmitted with a history of pain of twelve hours' duration in the lower end of the shaft of the left ulna. The region was slightly tender and swollen. A roentgenogram (Fig. 2) revealed signs of a bean sized area of bone absorption on the mesial side of the shaft of the left ulna one-half inch above the epiphysis, with slight surrounding new bone formation. Operation showed a cavity filled with purulent granulations, from which staphylococci were grown. Shortly after this, abscesses were drained in the right psoas and anterior sacral regions. Eight and one-half months from the onset, the patient complained of slight pain in the right tibia 4 inches below the upper end of the shaft. A roentgenogram taken immediately showed a small pea sized area of destruction in the cancellous bone about one-half inch posterior to the crest at that level. There was a second wheat grain sized area of reduced density in the cancellous bone 2 inches above, but there had been no symptoms in that region. All of the bones of the extremities were then roentgenographed, and three additional small foci were discovered in the leg bones, which had never produced local symptoms. One was situated in the cancellous bone of the center of the shaft of the right fibula 1½ inches above the lower end. There were two small peripheral foci of destruction with adjacent periosteal new bone formation on the lateral aspect of the shaft of the left tibia, one 4 inches

and the other 9 inches from the upper end (Fig. 3). There was no swelling or tenderness in the region of any of the silent foci. Because of the smallness of the newly discovered lesions and of the absence of symptoms in all except one, operative intervention was delayed. In the course of the following six months all of the lesions, except the one in the lower portion of the right fibula, made slight symptoms, and the one located 4 inches below the upper end of the shaft of the right tibia had three exacerbations with considerable extension of the process. They were all operated on and small cavities with sclerosed walls were found, filled with granulation tissue. Cultures of the granulations were sterile. The small lesion in the right fibula healed without operation. All foci in the leg bones have remained free of symptoms for two years since operation. One year from the onset, the patient complained of slight pain and tenderness over the palmar surface of the proximal phalanx of the right fourth finger, which disappeared in a few days and recurred five months later. A roentgenogram then revealed a small cherry sized area of destruction in the shaft of the phalanx, surrounded by some new bone. At operation the cavity was found filled with granulation tissue, which gave no growth when cultures were taken. Two years have since elapsed, during which time no new foci have been discovered, and the patient's general health is excellent, despite the fact that sinuses persist in connection with the fifth lumbar vertebra and occasional abscesses form in connection with it.

Fig. 1 (Case 1).—No spontaneous pain, but tenderness for two weeks before roentgenography.

Of the eight bony foci which developed, apparently secondary to the primary osteomyelitis of the spine, two had made slight local symptoms for some time, two had produced pain for a few hours, and four had produced no local symptoms or signs before detection by means of roentgenograms showing evidence of bone destruction and proliferation. Of the four silent foci, three went for some months after detection before producing slight local symptoms, because of which they were operated on, and one healed without having produced symptoms and has remained healed for more than two years.

CASE 2.—R. D., a man, aged 30, entered the hospital, Aug. 19, 1922, because of an abscess in the left parotid gland. Three years before, a friction blister on the foot became infected. This was complicated by a left perinephritic abscess, which was drained after five months. Six months from the onset, the left ear began to suppurate and had continued since. All hearing was gradually lost. One and one-half years from the onset, symptoms of osteomyelitis developed in the posterior portion of the left first rib and produced a fistula in the neck, which had healed. Three weeks before admission, infection developed in the left parotid gland, and incision of the abscess yielded pus, from which the staphylococcus was grown. One month later, pain and swelling developed in the right fibula, 3 inches from its lower end. The condition was neglected until three months later, when the patient reentered the hospital. A subcutaneous abscess was then present, and a roentgenogram (Fig. 4) revealed a central cavity in the fibula containing a sequestrum and surrounded by considerable new bone. Incidentally, an area of localized osteomyelitis with bone destruction and new bone formation was shown by the picture in the peripheral portion of the tibia 8 inches above the lower end. It had produced no local symptoms, and on examination was not tender. For ten days the patient had had slight pain on the mesial side of the left femur 8 inches above the knee. A roentgenogram revealed a peripherally situated area of bone destruction about the size of a cherry, with considerable surrounding new bone. It was evident from the roentgenogram that the pathologic process had existed for some time before local symptoms developed. The lesions in the fibula and the femur were operated on, but the lesion in the tibia was left. Three months from the time that the lesion in the right tibia was discovered, it produced pain for the first time. A second roentgenogram (Fig. 5) showed signs of enlargement of the area of bone destruction. At operation, the cavity contained pus and granulations, from which staphylococci were grown. Two months after admission, the patient developed pain in the distal end of the left metatarsal bone. A roentgenogram (Fig. 6) taken eight hours later revealed a cherry sized cavity on the plantar side of the end of the phalanx, and at operation it was found to contain yellow pus, from which *Staphylococcus aureus* was grown. About three months after admission, a swelling was noticed in the right temporal region. It was not painful at first, but soon became slightly tender. A roentgenogram revealed reduction in density in the underlying frontal bone. At operation, osteomyelitis of the tabula externa with a small abscess was found. Soon afterward the

Fig. 2.

Fig. 3.

Fig. 2 (Case 1).—Focus (*A*) in ulna twelve hours after onset of local symptoms.

Fig. 3 (Case 1).—Peripherally situated foci (*A* and *B*) which had not produced local symptoms and were discovered by roentgenography in search for silent lesions.

patient developed osteomyelitis of the occipital bone, with a large abscess back of the foramen magnum. This was drained, but meningitis supervened, resulting in death. At necropsy, besides osteomyelitic foci, a diffuse meningitis and a small recurrent abscess (which had shown no local symptoms) were present at the seat of the old perinephritic lesion that had been drained.

This was a long drawn out case of metastatic staphylococcus infection secondary to a skin focus.

Fig. 4.

Fig. 5.

Fig. 4 (Case 2).—Focus at *A* had produced symptoms for three months. Focus at *B* had produced no symptoms and was discovered incidentally by roentgenogram.

Fig. 5 (Case 2).—Condition of lesion shown in Figure 4 after three months. Lesion at *B* had enlarged and had just produced its first local symptoms. Subperiosteal resection at *A*.

Of the seven bony foci, it is known from roentgenographic evidence that four developed silently and produced bone abscesses that stood for some time before the onset of local symptoms. Judging from the roentgenogram, the abscess in the right tibia was of a few months' standing before it was incidentally detected, and it then ran for three months before producing the first local symptoms.

Case 3.—C. B., a youth, aged 16, who entered the hospital, Feb. 6, 1923, had acute diffuse osteomyelitis of the lower end of the left femur, beginning eighteen months previously. Between the third and eighth months after the onset, he developed osteomyelitic foci in the left ulna, right tibia, first lumbar vertebra, left clavicle and scapula, which were accompanied by the usual symptoms and signs. All the foci, except the one in the spine, had been operated on and continued to discharge pus. Six weeks before admission, he had slight pain at the middle of the left humerus, and the region had been slightly tender since. Three weeks previous to admission, pain had developed in the right fourth metatarsal bone, with slight tenderness. Palpation revealed small bony swellings in these regions. Because of the mildness of the symptoms at these points, the entire skeleton was palpated in search of other foci, and two small painless bony swellings were found on the right humerus, one 3 inches from the upper end and the other 2 inches from the lower end. Roentgenograms of the two symptomless lesions, as well as of the two which had made slight symptoms, revealed evidences of bone cavities with surrounding newly formed bone. Those in the humerus were peripherally situated and had apparently begun as subperiosteal infections. The foci were all operated on and the cavities found filled with granulation tissue. July 12, the patient returned, complaining of slight pain and tenderness in the right ischial region, of four weeks' duration, and in the distal end of the left fifth metatarsal bone of two days' duration. Roentgenograms revealed cavities in these regions, with shadows produced by surrounding new bone. At operation the cavities were found filled with granulation tissue. July 19, he first complained of pain and tenderness in the right third metacarpal bone. A roentgenogram taken immediately revealed a central cavity, which must have been present for weeks, in the proximal portion of the bone. The plate included the lower part of the ulna and showed incidentally a diffuse spindle shaped swelling of that bone, 2 inches in length and beginning 1½ inches above the lower end. This had produced no symptoms. Both lesions were operated on immediately. The cavity in the metacarpal bone was the size of a small cherry and that in the ulna was narrow, about 1 inch long, and both were filled with granulation tissue. There was marked peripheral bony thickening.

In this case a second crop of eight lesions of localized osteomyelitis became manifest from seventeen to twenty-four months from the onset, and four foci had existed for at least a few weeks before coming to light through symptoms or examination. Three of these had produced no pain, and one pain for only a few hours when roentgenograms were taken, which revealed evidences of cavities and surrounding new bone at the seats of all lesions.

Case 4.—R. F., a boy, aged 7, entered the hospital, May 25, 1917, with four areas of localized osteomyelitis of from ten to twelve months' standing, which had produced the usual symptoms, with flareups coming every two or three months. There was an abscess in the posterior part of the lower end of the right tibia, one in the lower end of the right humerus, and two abscesses in the lower end of the left tibia. They were operated on, and all healed temporarily. Several foci of localized osteomyelitis developed in other bones in the two

Fig. 6 (Case 2).—Cavity at *A* eight hours after first local symptoms.

succeeding years. A roentgenogram of the right tibia, taken two years after operation, showed no signs of a cavity or other evidence of osteomyelitis at the seat of the former lesion at its lower end. Seven years after the operation, the patient was slightly indisposed for four or five weeks, with slight elevation of temperature, and then developed pain and swelling at the seat of the old lesion in the right tibia, with fever and general symptoms of infection. A roentgenogram (Fig. 7) taken three days after the onset of local symptoms showed an oval shaped area of reduced density, 1 inch long, in the

posterior part of the tibia. At operation, a cavity was found lined with granulation tissue and filled with yellow pus. The inflammatory process was of at least a few weeks' standing, and probably was responsible for the indisposition that preceded the onset of local symptoms.

COMMENT

It is impossible to estimate with any degree of certainty the duration of the lesions in these cases at the

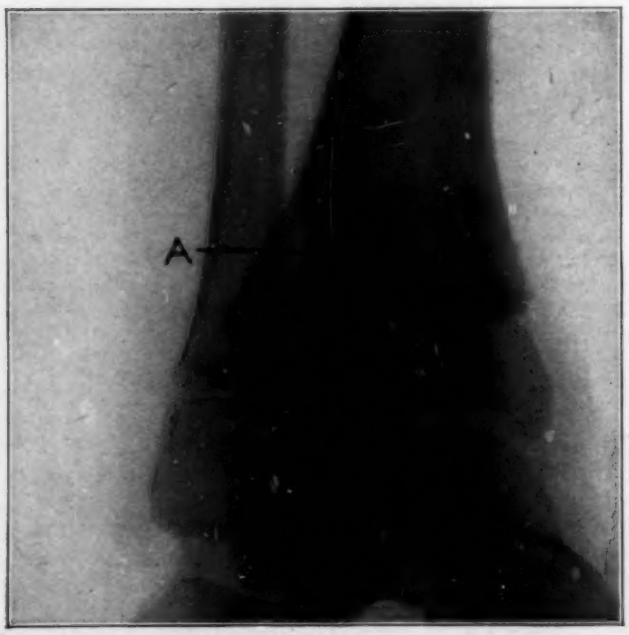

Fig. 7. (Case 4).—Bone abscess (*A*), of ten months' standing, in tibia.

time they were detected either before or immediately after the onset of local symptoms; but, from the roentgenographic and operative findings, it varied from weeks (possibly two or three) to several months. It is speculative as to the extent of the lesions at the onset. Some may have reached their full size as a result of the initial inflammatory reaction, but others undoubtedly enlarged as periodic exacerbations increased the absorptive and proliferative changes. In many cases the lesion was extremely small at first. In Case 1, four foci in the leg bones were followed during a period of six months before any of them were operated on. They were all small when detected. Some increased from periodic exacerbations until they were of considerable size. The one that healed without operation did so without a period of enlargement after it was detected. All lesions should be operated on when discovered, since experience is that, if left alone, they usually enlarge.

An analogous condition is a familiar picture to the dental surgeon, although the two lesions are quite independent. Infection at the root of a tooth may begin silently and lead to absorption of the surrounding bone, forming a various sized cavity, which at operation is usually found to be filled with granulations, occasionally with pus. The lesion is usually held to be the result of infection starting locally, the organisms entering by way of the root canal. However, the absence of dental caries and of signs of infection in the root canal in a certain percentage of these teeth which have been extracted has led to the belief that at least some of the infections are hematogenous in origin.[1] Such lesions rarely cause pain, and they may stand for years and produce large blind pockets before they are detected. The organism found is, according to Gilmer and Moody[2] nearly always *Streptococcus viridans*. In other parts of the skeleton, the organisms producing pyogenic osteomyelitis are the staphylococcus in about 90 per cent. of cases, and *Streptococcus hemolyticus* and other pus germs occasionally. Publications on the bacteriology of streptococcus osteomyelitis are not numerous since *Streptococcus viridans* has been established as an especial type, but there is no reported case in which *Streptococcus viridans* has been found the exciting cause. Consequently, there seems to be no etiologic relationship between painless abscesses at the roots of teeth and painless abscesses in other parts of the skeleton.

Small areas of inflammation not infrequently develop silently in the soft parts in the course of sepsis, particularly when produced by the staphylococcus. It is not uncommon to see abscesses in muscles, subcutaneous tissue and viscera, which produce no pain. The absence or slightness of local symptoms is to be attributed partly to the paucity of sensory nerve supply of the region, and partly to the low grade of the inflammatory process. The low grade infection may be the result of attenuation of the micro-organisms since the onset of the initial focus or of increase of body resistance in the course of prolonged infection.

Localized thickening of the cortex or sclerosis of cancellous bone is not infrequently revealed incidentally in roentgenograms of regions where there have never been any symptoms of disease. These findings have

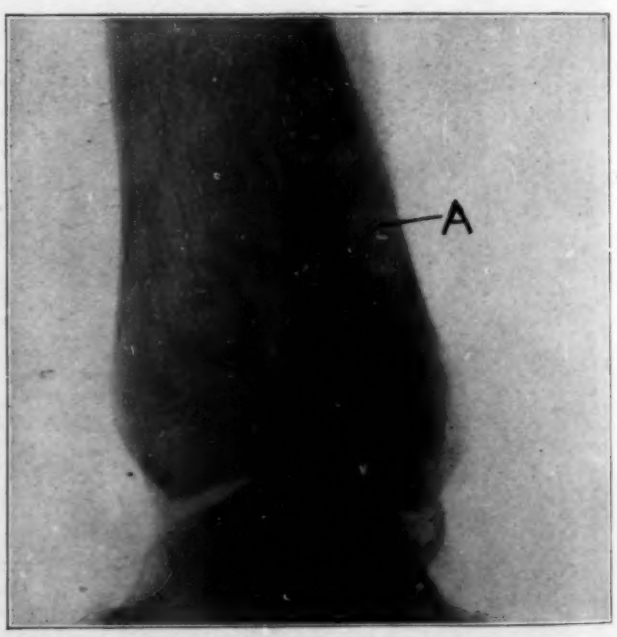

Fig. 8 (Case 4).—Condition six years after operation: recurrent abscess (*A*) three days after onset of local symptoms; slight general symptoms had been present for five weeks, apparently due to the focus.

been very puzzling to roentgenologists, and no satisfactory explanation has been given for their presence. It is not unlikely that the cause in some cases was a slight focus of infection which healed.

1. Thoma, K. H.: Items of Dental Interest **44**: 290, 1922. Gilmer, T. L.: Personal communication to the author.

2. Gilmer, T. L., and Moody, A. U.: A Study of the Bacteriology of Alveolar Abscess and Infected Root Canals, J. A. M. A. **63**: 2023 (Dec. 5) 1914.

SUMMARY

1. Localized osteomyelitis may develop painlessly and may be present for weeks or months before producing local symptoms.

2. Silent foci usually arise as complications or sequelae of diffuse staphylococcus osteomyelitis.

3. A routine search for silent foci by palpation and roentgenography is sometimes indicated.

4. Certain localized symptomless areas of bone sclerosis may be explained in this way.

5. There is apparently no etiologic connection between this lesion and painless abscess or granuloma about the root of a tooth.

The Presbyterian Hospital.

HYPERNEPHROMA OF THE OVARY

REPORT OF A CASE IN A CHILD THREE AND ONE-HALF YEARS OF AGE *

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This case of hypernephroma of the ovary is reported because of its unusual interest to both the clinician and the pathologist.

REPORT OF CASE

History.—T. B., a girl, aged 3½, admitted to the hospital, May 6, 1922, for six weeks had been less active than formerly, had tired easily, and had lost her appetite. During this period there had been a gradual increase in the size of the abdomen. She had been fretful the two days preceding admission, and there had been a slight rise of temperature which was due, as later developments showed, to the early symptoms of measles. She was a well developed, normal child at birth. She had always been considered precocious. She appeared and acted like an older child. For the last year there had been abnormal development of the vulva with a slight growth of pubic hair, and recently she had begun to masturbate.

Physical Examination.—The temperature was 102. The face was flushed. The conjunctivae were slightly injected. There was no skin rash. The mucous membranes, head, neck, extremities, heart and lungs were normal. The abdomen was moderately distended, not tender, and a definite fluid wave was made out. To the right of the umbilicus a rounded movable mass could be distinctly palpated. There were no palpable glands in the axillae or groins. The vulva presented the appearance of that of a normal child at the age of puberty. The urine was normal. Blood examination revealed: red cells, 4,100,000; hemoglobin, 85 per cent.; leukocytes, 4,000; polymorphonuclears, 74 per cent.

The provisional diagnosis was: tuberculous peritonitis.

Operation and Result.—A lower midrectus incision was made, May 8. The abdominal cavity was filled with free, straw colored fluid, and contained a freely movable tumor, the size of an orange, involving the right ovary, attached by a long, slender pedicle to the broad ligament. There were no adhesions. Both the parietal and the visceral peritoneum seemed everywhere to be normal.

The left tube and ovary were normal in appearance. The fluid was evacuated, the pedicle ligated, and the tumor removed.

The day after operation, a rash appeared on the face and body, which proved to be measles. This happening accounted for the unexplained rise of temperature, which had been the cause of the mother seeking medical advice. Convalescence was straightforward in spite of the complication, and the child was discharged, May 20, fourteen days after the operation. In a few weeks the pubic hair disappeared and the child ceased to masturbate. She has grown and developed in a normal way. About October, 1923, one and one-half years after operation, the mother noticed that the child was acting unnaturally and that she was again masturbating, and at the same time there was a reappearance of hair. Suspecting that there might be a recurrence of the hypernephroma, we made a careful abdominal and rectal examination, with roentgen-ray examination of the chest and long bones, all of which were negative. The child is about normal in size for her age. She is well nourished, with no over development of fat. There is no pigmentation of the skin, nor is there unusual development of the hair except in the pubic region. She is mentally very alert. At this time—Jan. 8, 1924—she appears to be in perfect health.

Pathologic Examination.—The tumor represented the right ovary. The tube was attached, appeared normal, was free, and showed a normal relation to the hilum of the ovary. The mass, which measured 14 by 12 by 12 cm., was a smoothly encapsulated, tense tumor with fluctuating areas at one pole, and firmer ones at the other. The surface resembled the normal covering of the ovary, and presented a few minute cysts, probably follicles. The hemorrhagic nature of the tumor showed through the capsule. On section, irregular cavities were disclosed at the cystic end lined with softened, hemorrhagic tumor tissue, fibrin and fresh blood clot, while the solid portion, which was also very vascular, but not degenerated, showed a cellular structure with deep yellow pigmentation setting off the spongy tissue, which was intensely vascular. After a large amount of the sanguinoserous fluid had been evacuated, the tumor appeared as in Figure 1. The growth was sharply defined, appearing to be separate from the parovarium and the flattened ovarian parenchyma.

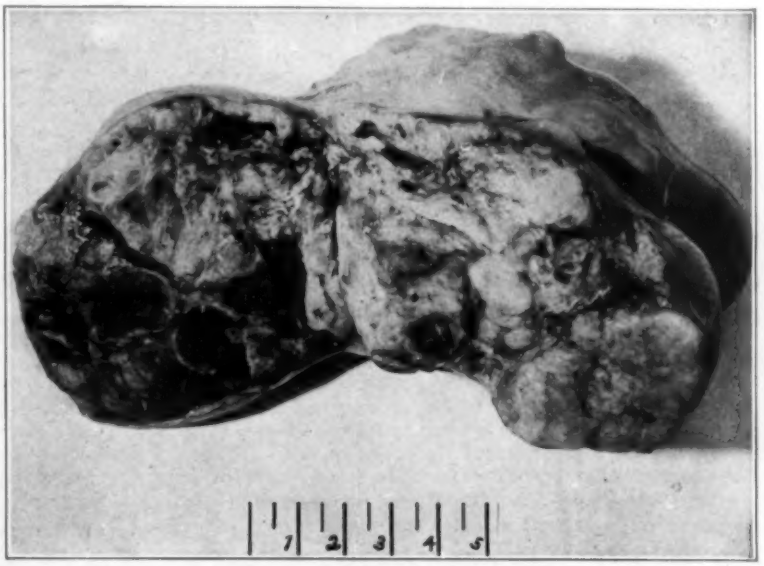

Fig. 1.—Hypernephroma of ovary.

Sections showed that the tumor was very vascular, with considerable necrosis and much edema of the stroma. The latter was moderate in amount and divided the cellular portion into rather large lobules. The connective tissue nuclei in these areas were small and the collagen often scanty, the nuclei appearing only loosely connected by fibrils. Red blood cells, polymorphonuclear neutrophils, eosinophils and lymphocytes were found throughout this stroma. The blood supply was very extensive, and there were numerous large sinuses separated from the tumor cells only by endothelium.

* From the Surgical Service and Pathological Department of St. Luke's Hospital.

The intrinsic tumor cells closely resembled those of the zona fasciculata of the suprarenal (Fig. 2). The coarse lobulations enclosed solid masses of these cells, which were often separated by extremely delicate septums carrying fine capillaries; but small alveoli of cells whose walls were in direct contact were numerous. No acinar lumina could be identified, but there was a tendency toward a columnar arrangement, as in the suprarenal. The cell walls were generally plainly seen outlining the large polygonal or oval cell bodies. The cytoplasm was variable; at times it was perfectly clear, again slightly brownish with the eosin stain, but often finely granular and acidophil. Stained with scarlet red, the granular cells were found to contain a considerable number of fine lipoid globules, which were not doubly refracting with the polarizing microscope. Best's carmin stain also demonstrated many deposits of glycogen, the distribution very uneven, as some cells were nearly filled with it; others showed none, or only a few minute masses. It was found, however, in all portions of the section, though not in all cells.

The nuclei showed the comparative uniformity in size which characterizes those of most hypernephromas. They were generally spherical, small in proportion to the size of the cell body, stained sharply, and had a uniform, almost homogeneous appearance, being only rarely vesicular. Mitotic figures were not found, though occasionally a very large nucleus appeared.

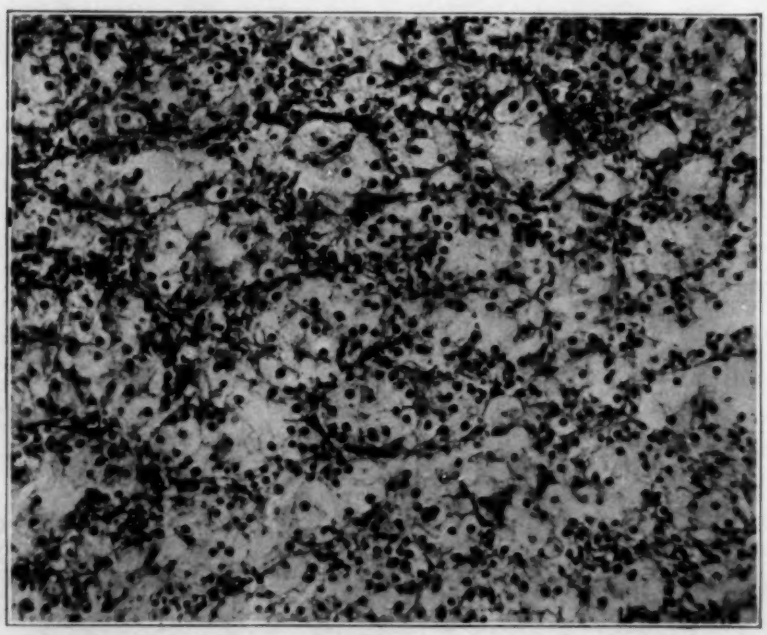

Fig. 2.—Hypernephroma of ovary, reduced from a photomicrograph magnified 175 diameters.

Ovarian stroma was not found within the substance of the growth, but the small cysts seen on the surface were minute cystic follicles embedded in edematous ovarian stroma. At the hilum also the growth was readily separated from the ovarian stroma, and did not infiltrate in single cells. In this respect also the tumor resembles many of those of the suprarenal or kidney.

COMMENT

Aberrant retained fragments of tissue identical with the cortex of the suprarenal have been known since the time of Morgagni, and later observers have found them in the kidney, between the renal and solar plexuses, under the capsule of the liver, around the pancreas, along the course of the spermatic vein, in the epididymis, and in the hilum of the ovary and testis. One was also found by Meyer within the rete of an undescended testis, and Marchand,[1] in 1883 showed that they are by no means infrequent between the leaves of the broad ligament. Their relation to the parenchyma of the ovary has been much discussed, for some of those in the broad ligament or in the hilum of the ovary have been large and by the time of operation involved all the adjacent structures to such an extent that their site of origin was entirely obscured. It is certain, however, that several have been closely surrounded by ovarian stroma, have been encapsulated, and therefore have unquestionably originated within the gland. A few other large tumors of this variety were inseparable from the ovary, but may have grown from its hilum.

Most of the aberrant gland rests undoubtedly cause slight, if any, pathologic or physiologic effects, and normal suprarenals are usually found in these cases. But that they may compensate for deficient suprarenal secretion as do the thyroid tumors for the thyroid, is shown by the case of Roth,[2] who found multiple bilateral hypertrophied suprarenal rests in the body of Highmore in a case of Addison's disease with almost complete destruction of the normal gland.

The literature contains descriptions of only eleven cases which are truly ovarian, but only one of these, that of Gaudier,[3] resembles the present case in that the tumor began active growth in infancy and hence exerted the fundamental influences on growth and sexual development which such a tumor may if active during the formative period of the individual. His patient, as well as ours, showed premature sexual development, a phenomenon that may result occasionally from disturbed ovarian function associated with a cyst or sarcoma of the gland, though it is by no means a constant finding with ovarian tumors in infants, and its frequent absence contributes to the difficulty of a correct clinical diagnosis. On the other hand, suprarenal tumors composed of pigmented cortical cells arising in infancy and early childhood regularly cause striking developmental results, while sarcomas and lymphosarcomas do not necessarily do so. In such a case as the present, the effect is probably therefore due more to the type of tumor cell than to the secondary effects on the ovary; but ft is impossible to separate these two factors completely, either normally or pathologically. Lenz,[4] who analyzed the literature of eighty-one cases of pubertas praecox in the female, found that 90 per cent. of them were due to hyperovarianism, and the remainder to pathologic conditions of the pineal or suprarenal.

Ovarian cases are said by Leiner[5] to be invariably accompanied by menstruation, and the patients conform in their secondary sex characteristics to the female type.

Pure suprarenal types, of which about 78 per cent. have been females, according to Glynn, usually show a precocious growth of body and of sex organs, overgrowth of hair and of fat, pigmentation rather inconstantly, and frequently mental dulness. Many patients have shown a tendency toward the masculine type. Precocious menstruation has been observed only once in the suprarenal group, and that was after the tenth year. Nearly all these patients have died in childhood, either

1. Marchand: Virchows Arch. f. path. Anat. **92**: 14, 1883.

2. Roth, cited by Ulrich (Footnote 20).
3. Gaudier: Bull. et mém. Soc. de chir. de Paris **34**: 709, 1908.
4. Lenz: Arch. f. Gynäk. **99**: 67, 1913.
5. Leiner, J. H.: Endocrinology **4**: 369 (July-Sept.) 1920.

because their glandular dyscrasia has rendered them very susceptible to intercurrent infections, or more often because the tumors, being large, inaccessible, and frequently metastasizing at the time of operation, have caused the patients to succumb to the surgical procedures.

The ovarian cases, with readily accessible benign growths, have, however, frequently been greatly improved by operation, and a recession of the pathologic characters has occurred. The interrelation of the endocrine glands is undoubtedly very important, and most of the symptoms are due to imbalance of secretions.

LITERATURE

The reported cases of ovarian hypernephromas in the female [6] may be thus summarized:

1. Peham's [7] patient, aged 45, had had four normal pregnancies. For a few months she had malaise, anorexia and abdominal pain. The uterus and abdomen were enlarged, and menstruation was irregular. At operation, 3 liters of fluid were found in the abdomen, with a large, hemorrhagic and cystic tumor of the ovary resembling a hypernephroma of the suprarenal.

2. Pick's [8] patient, aged 51, had a large, right, ovarian tumor, which was removed at operation. Two years later the patient died.

3. Sternberg's [9] patient, aged 17, was pale and undernourished. Menstruation had been normal until a few months before, when it ceased entirely. A tumor, 15 cm. in diameter, was extirpated. To the left, at the edge of the broad ligament, was a second tumor the size of an apple, considered a metastasis by Sternberg and by Pfannenstiel. The tumor recurred in six weeks. It was vascular, yellow, and infiltrated by the ovarian stroma. The cells contained glycogen.

4. Riche's [10] case was mentioned by Frankl. The literature is not obtainable.

5. Gardner and McCleary [11] regarded a tumor as probably ovarian, though possibly originating in the broad ligament, with metastases to the ovary, which was eventually entirely involved. The patient, aged 49, had had amenorrhea seven or eight years, and a tumor in the pelvis associated with pain for two years. At operation there was dark fluid in the abdomen; the tumor was extirpated, but recurred in eleven months, and another mass 10 cm. in diameter was removed. Two years later the patient was well and free from signs of recurrence. The tumor was composed of polygonal cells resembling the glomerular and fascicular zones of the suprarenal.

6. Meyer [12] demonstrated an ovarian tumor, hemorrhagic, with yellow vacuolated cells arranged in an alveolar manner closely resembling the suprarenal cortex. The patient died with a metastasis in the humerus.

7. Gaudier's [3] patient, aged 4, had an abdominal tumor that had been noted three or four months. There had been menorrhagia and metrorrhagia for three months. There was pubic hair on the mons; the labia were large and pigmented; the breasts were large and hemispherical; the nipples and areola were mature in type and were pigmented. The tumor was the size of an orange; it was mobile and smooth, was attached to the broad ligament by a long pedicle, was solid and firm, was ochre yellow, and was vascular. It was composed of polyhedral cells resembling the suprarenal cortex, and cystic primordial follicles were flattened around the periphery of the tumor.

8. Pfannenstiel [13] mentions having seen such a case, but furnishes no details of the clinical history.

9. Von Rosthorn's [14] patient, aged 26, had had one pregnancy. The genitals were normal. For six months there had been increase in the size of the abdomen, and for three months pain in the pelvis. At operation both ovaries were the seat of tumors, each about the size of an orange. There was much softening and necrosis; the tissue elsewhere was yellow, and was composed of epithelial cells, which contained glycogen and fat.

10. Von Willer's [15] patient, aged 27, had had one normal pregnancy. Menstruation was irregular and infrequent. The tumor was noted in the pelvis post partum. There was moderate pain for two years. The left ovary was small, hard and painful. The uterus was normal. The right ovary was converted into a tumor measuring 10 by 7 by 4.5 cm. The capsule was smooth; the cut surface was yellow, compact and dry. The capsule contained remnants of ovarian tissue, with a few small follicles and corpora albicantia. The cells contained fat.

11. Alamartine and Maurizot's [16] patient, aged 56, had metrorrhagia, with a fibroid tumor of the uterus. At operation, another tumor, the size of an orange, was noted within the broad ligament, adherent to the bladder and the external iliac vessels. The ovary was large, and presented nodules of the yellow tumor on the surface. These may have been metastatic, or the growth may have originated within it. The patient succumbed to operation.

Other tumors mentioned in the literature and frequently included with the foregoing are probably of the broad ligament type. They have been described by Bovin,[17] Flatau, Weiss,[18] Chiari [19] and Ulrich.[20]

SUMMARY

The literature, therefore, furnishes only eleven instances of hypernephroma of the ovarian type. Clinically, only one of these closely resembles the present, as only one occurred in childhood. The remainder have resembled, both clinically and pathologically, hypernephromas of the suprarenal or kidney or have given local symptoms referable to the ovary. Although the records are incomplete, only two of the eleven are known to have proved fatal, although two others have recurred. It is probable, therefore, that their malignancy is approximately the same, whether primary in the ovary or in or about the kidney region, and a favorable result may be hoped for from an early extirpation.

424 Park Avenue.

6. It is unnecessary to discuss here the rare pseudohermaphroditic cases, 15 per cent. of which are said by Glynn (Quart. J. Med. **5**: 157, 1912) to have shown hyperplasia or tumor of the suprarenal cortex.
7. Peham: Monatschr. f. Geburtsh. u. Gynäk. **10**: 685, 1899.
8. Pick: Arch. f. Gynäk. **64**: 670, 1901.
9. Sternberg-Lihotsky: Zentralbl. f. Gynäk. **30**: 728, 1906.
10. Riche: Inaug. Diss., Lille, 1907, cited by Frankl: Handbuch der Frauenheilkunde, Leipzig **2**, 1914.
11. Gardner and McCleary: Surg., Gynec. & Obst. **7**: 669, 1908.
12. Meyer, R., in Lubarsch-Ostertag: Ergebnisse **9**: 624, 1903; Verhandl. d. deutsch. path. Gesellsch. **12**: 138, 1908.
13. Pfannenstiel, in Veit: Handbuch der Gynäkologie **4**: 406, 1908.
14. Von Rosthorn: Verhandl. d. deutsch. Gesellsch. f. Gynäk. **13**: 362, 1909.
15. Von Willer: Beitr. z. path. anat. u. z. allg. Path. **50**: 161, 1911.
16. Alamartine and Maurizot: Rev. de gynéc. et de chir. abd. **18**: 1, 1912.
17. Bovin: Nord. med. Archiv., 1908, cited by Ribbert: Geschwulstlehre, Bonn, 1914.
18. Weiss: Beitz. z. path. Anat. u. z. allg. Path. **24**: 34, 1898.
19. Chiari: Ztschr. f. Heilk. **5**: 449, 1884.
20. Ulrich: Beitr. z. path. Anat. u. z. allg. Path. **18**: 589, 1895.

Enuresis.—In enuresis, when organic causes such as tabes are eliminated, psychotherapy is of first importance. Scolding and punishment are of no use. The patient should train himself to pass urine only at certain definite hours of the day. He should be systematically awakened at night, not once but as many times as required, and generally with improvement less frequently. Fluids at bedtime should be restricted. Occlusion of the penis is useless; faradization of the bladder is not advisable in boys, as it directs attention to the genitalia. Filling of the bladder with indifferent fluids to get it accustomed to distention, and silver nitrate irrigations to lessen its reflex excitability, are of value. Epidural injection brings improvement in many cases.—Weber, L. W.: Diagnostische und therapeutische Irrtümer und deren Verhütung, Leipzig, **3**, 1923.

CONGENITAL MITRAL STENOSIS

REPORT OF A CASE OF DEVELOPMENTAL MITRAL STENOSIS COMBINED WITH HYPOPLASIA OF LEFT VENTRICLE AND LEFT AURICLE; RUDIMENTARY AORTA AND OTHER DEVELOPMENTAL DEFECTS

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The writers of the classic articles on the subject of congenital heart disease, such as Peacock,[1] Rokitansky,[2] Rauchfuss,[3] Keith,[4] Herxheimer[5] and Abbott,[6] have little to say of congenital mitral stenosis more than to mention its rarity or refer to two or three cases. It is said to be more rare than atresia of the mitral orifice, which statement is substantiated by a comparison of the number of cases found in medical literature with those of complete occlusion of the left auriculoventricular passage.

Eleven examples have been found established by necropsies, and these, with the case reported here, make an even dozen in all.

REPORT OF CASE

History.—A girl, white, born, Aug. 5, 1917, at full term, after a normal and easy labor of five hours' duration, weighed 7 pounds (3.2 kg.). The father was 27, the mother, 26, and both were in good health. There was no family history of heart disease, tuberculosis or syphilis. The mother had had no previous pregnancies, and was not ill during pregnancy. The infant breathed and nursed well, and was of good color. The stools and urine were normally excreted. No heart murmur was made out at birth. The child, apparently was in perfect health. Forty-three hours after birth, while in the nurse's arms, the baby suddenly became pale and limp; cyanosis developed, and the respirations became rapid, irregular and labored. She improved somewhat, the color at times being fairly good and the respirations less labored. A loud systolic murmur was then audible over the heart, loudest at the base and heard in the back. Death occurred suddenly when she was 57 hours old.

Necropsy.—The lungs and all of the organs of the abdomen were present and appeared to be normal. The heart showed especially a large, rounded ventricle with blunt point, which appeared to be entirely a right ventricle. A very large artery sprang from this anteriorly. The auricle, which received in their normal relations the inferior and superior venae cavae, was relatively large. The four pulmonary veins entered a very small left auricle, which had a relatively large and conspicuous auricular appendage. No external evidence of the existence of a left ventricle was apparent at first sight. From behind the left auricular appendage a very narrow, cordlike vessel rose and arched over toward the large artery springing from the right ventricle. This narrow vessel gave off upward two arteries, and had another free or cut end. It also communicated with the large artery from the right ventricle by a wide ductus arteriosus. The large artery mentioned gave off the two pulmonary arteries and ductus arteriosus, and then continued as a trunk 7 mm. in diameter.

Structurally, according to the course of the blood, the right auricle presented no special abnormality. It communicated very widely with the right ventricle through an orifice normally surrounded by a tricuspid valve. Anteriorly, it gave off a large arterial trunk, mentioned heretofore, which at its origin was from 9 to 10 mm. in diameter and was guarded by three semilunar valves. This trunk, as described, gave off laterally near its root the two pulmonary arteries and later the ductus arteriosus, and then proceeded as a large trunk probably to become the functional dorsal aorta, although its course was not traced.

The pulmonary veins were opened, and in this way, with the aid of an incision along the auricular appendage, the left auricle was laid open. The foramen ovale was very small, guarded by a rather thick fold, but freely open into the right auricle. At the bottom of the left auricle was a small orifice, not more than 3 mm. in diameter, through which a probe could be passed into what appeared to be the substance of the wall of the heart. The left coronary artery followed its normal course, however, and suggested the line of incision which should pass into a rudimentary left ventricle. These incisions made in the heart wall revealed a minute chamber which represented the left ventricle. The small, left, auriculo-

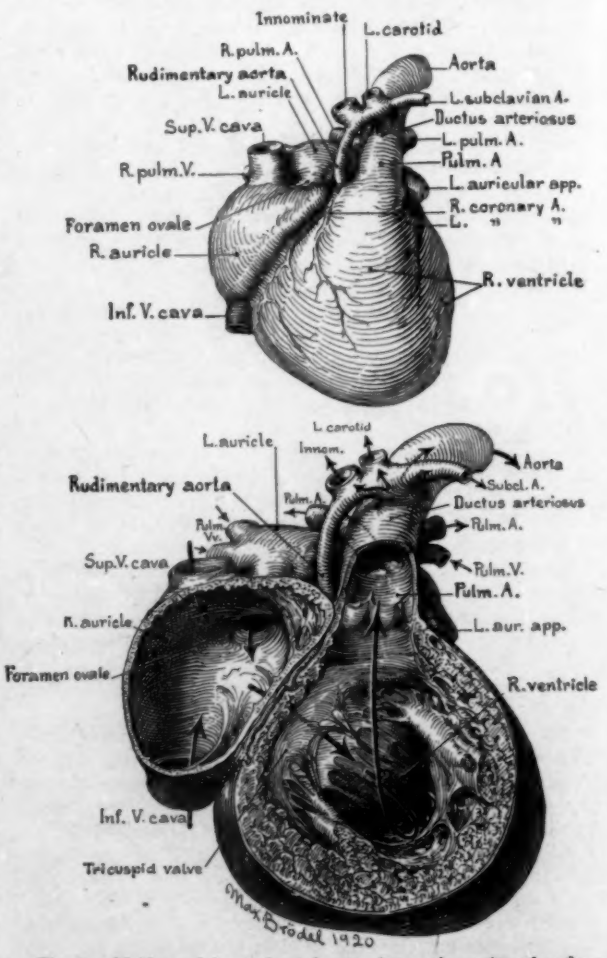

Fig. 1.—Malformed heart from front; above, about three-fourths actual size; below, slightly larger, with arrows indicating the probable course of blood in the heart and vessels. One sees the large, rounded, right ventricle, from which arises the large pulmonary artery, which, after giving off left and right pulmonary branches, becomes the thoracic aorta. The large, continuous trunk coming from the right ventricle is thus seen to be the pulmonary artery, ductus arteriosus, and thoracic aorta. The first portion of the aortic arch is narrow and rudimentary, of smaller diameter than its branches, the innominate and left carotid arteries. This shows that the blood current in the transverse portion of the aortic arch is in the opposite direction from the normal course: a back flow of blood through transverse aorta from the ductus arteriosus is necessary to supply the head and the upper extremities. The right ventricle and auricle are much larger than normal; the pulmonary and tricuspid valves are normal; the superior and inferior venae cavae and coronary vessels are in their normal relations. A large interauricular septal defect is seen, permitting the blood to flow from the left auricle into the right, the reverse of the normal course during fetal life, and pathologic after birth.

ventricular orifice was provided with a funnel shaped, baggy valve, undifferentiated into segments, and continuous except for the minute opening at the free edge only large enough

1. Peacock, T. B.: On Malformation of the Human Heart, Ed. 2, London, 1866.
2. Rokitansky, Carl: Defekte der Scheidewande des Herzens, Vienna, 1875.
3. Rauchfuss, in Gerhardt's Handbuch der Kinderkrankheiten **4**, Part 1, 1878.
4. Keith, Arthur: The Hunterian Lectures on Malformations of the Heart, Lancet **2**: 359, 433, 519 et seq., 1909.
5. Herxheimer: Missbildungen des Herzens, in Schwalbe's Morphologie der Missbildungen, Jena, 1910, pp. 361, et seq.
6. Abbott, M. E., in Osler and McCrae: Modern Medicine.

to permit the passage of a small wire. Chordae tendineae with papillary muscles were attached to this stenosed mitral valve. From this very small, slitlike, left ventricle, which could hardly hold 1 c.c. of blood, there arose in about the normal position an aorta which, at its beginning, measured about 6 mm. in diameter, but, after giving off the two coronary arteries, measured only about 3 mm. The arteries that sprang from this arching vessel and went to the head were much larger than the aorta itself, and measured 5 mm. in diameter. They evidently received most of their blood through the ductus arteriosus, and the aorta was really a rudimentary connection. The continuation of the rudimentary aorta formed the left subclavian artery.

Thus, the heart was malformed only in the sense that the chambers of the left side were extremely small and the aorta rudimentary, while the trunk proceeding from the right ventricle, after giving off the pulmonary arteries and the ductus arteriosus, apparently formed the thoracic aorta. Arterial blood was thus distributed, in great part, from the right ventricle to all the tissues. Aeration occurred only in that relatively small part of the blood which, reaching the lungs from quite large pulmonary arteries, could be returned by the very inadequate path of the mitral orifice and the rudimentary left ventricle and aorta. There was no demonstrable orifice between the left and right ventricles. Probably the greater part of the blood that passed through the lungs reached the right auricle through the foramen ovale.

EXPLANATION OF THE ANOMALY

The explanation of the cardiac anomaly presented is comparatively simple. The defect happened during the differentiation of the mitral valve out of the endocardial cushions. The free margins of these cushions grow down into the ventricles, and muscular trabeculae from the heart walls invade their structure and form their attachments, so that for a time the valve consists partly of endothelial growths and partly of musculature. A differentiation into musculi papillares, chordae tendineae and valve flaps develops as the musculature in these structures degenerates. This is the point at which something happens in congenital stenosis to prevent the normal development into valve segments; growth is arrested in the mitral valve and in those chambers and vessels whose growth is dependent on the proper functioning of the left auriculoventricular orifice, particularly the left ventricle, aorta and left auricle. The completion of the subdivision of the heart, the almost complete development of the valve apparatus, and the outer form of the heart, have occurred by the time the embryo is 8 weeks old.

With the establishment of the narrowed left auriculoventricular passage, arrest in development of the left heart ensues, because of the small amount of blood that is permitted to take the normal course through it, while, on the other hand, there is dilatation and hypertrophy of the right heart because of the increased amount of blood that it receives and propels. As the interventricular septum was completely formed and closed in this case, blood entered the left ventricle solely through the stenosed mitral orifice, but in such small volume that this ventricle had almost no function to perform and remained undeveloped. As an immediate consequence of the greatly diminished function of the left ventricle, the aorta failed to develop, and remained rudimentary.

The left auricle, receiving blood from the lungs and unable to send it into the left ventricle, may have passed it through the foramen ovale into the right auricle. One hesitates to say that this was certainly the case, although the large and comparatively powerful right ventricle may have made its force felt through the pulmonary circulation and have been an added factor to left auricular contraction to produce this result. Among the twelve cases, including the eleven compiled from the literature, and the present case, it is pertinent to note that there were nine in which mention was made with regard to the patency of the foramen ovale. Six of these hearts had closed interauricular septums,

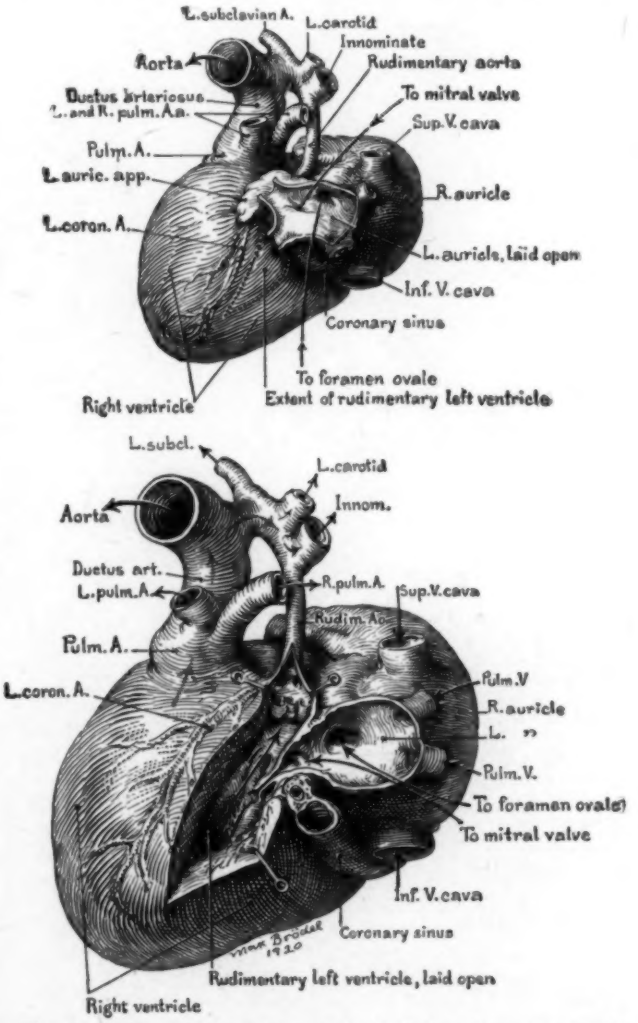

Fig. 2.—Malformed heart from behind; above, about three-fourths actual size; below, slightly enlarged, with arrows indicating probable course of the blood in the heart and vessels. The most striking malformations are the rudimentary state of development of the left side of the heart and the aorta. The left ventricle is a small cavity of about 1 c.c. capacity, apparently tucked away in the wall of the right ventricle, yet completely formed, with the interventricular septum perfectly developed. The mitral valve possesses only a minute opening. The aortic orifice likewise is very small but perfectly formed, and has three semilunar valves, as normally. The aorta is small and underdeveloped, yet provided with openings for the coronary arteries, which course in their normal relations. The caliber of the ascending aorta is less than that of the innominate and left carotid, indicating that blood from the right heart, pulmonary artery and ductus arteriosus goes to them. The aorta continues as the left subclavian artery. The left auricle is much reduced in size, but not to the degree found in the left ventricle. Four pulmonary veins are present. A small passage leads from the auricle to the ventricle through the minute opening in the mitral valve. The interauricular septum is incompletely closed, a relatively large defect remaining probably to permit the passage of blood from the left to the right auricle; the high degree of stenosis of the mitral valve allows only a small part of the blood returning from the lungs to take the natural course, the bulk of this blood probably passing through the foramen ovale into the right auricle, and thence through the tricuspid orifice into the right ventricle, leaving the heart by way of the pulmonary artery, which, with the ductus arteriosus, becomes the thoracic aorta.

while in only three was the foramen open. That patency may not have been of great compensatory value is further shown by the fact that, among those children with the greatest duration of life, the foramen ovale was closed.

Almost the entire function of this heart was performed by the right side, which resulted in an enlarged right ventricle and dilated pulmonary artery. Persistence of the ductus arteriosus permitted the passage of blood through the aorta in a reverse to the normal direction into the vessels of the head and upper

Fig. 3.—Congenital stenosis of the mitral valve; magnification, 10 diameters. The V-shaped flap indicated by dotted lines in Figure 2 is raised and turned to the right, disclosing the cavity of the little left ventricle and permitting a detailed study from below of the puckered, baggy mitral valve, whose sole orifice is indicated by a small wire passed through it. Papillary muscles are present and rudimentary chordae tendineae. A perfect aortic orifice in miniature is seen.

extremities, and onward into the thoracic aorta. In seven of the twelve cases, the ductus arteriosus was mentioned; in six of the seven, it was patent.

The pulmonary artery and aorta would indeed appear to be either capable of maintaining for a time both the pulmonic and systemic circulations; and the necessary effect of the one vessel having the twofold function to perform would be to give rise to hypertrophy and dilatation of the cavities of the heart more directly connected with it, and to the atrophy and contraction of those which are thrown out of the course of the circulation.

Among the twelve cases there were six (Blackmore, Ebenezer Smith, Carmichael,[10] Thérémin,[11] Fisher,[12] Donnally) with purely structural stenosis of the mitral valve; in four others (Parrot-Teissier,[13] Gissler,[14] Ayrolles,[15] Sansom[16]) there was structural defect with endocarditis added to it; in the two remaining cases (Fischer,[17] Kockel[18]) there was purely inflammatory stenosis, which the authors believed to be due to infectious diseases of the mothers; in the one, influenza; in the other, acute bronchitis, six weeks before the end of pregnancy in each.

In eight of the twelve patients, the duration of life was two months or less, being only one or two days in five of the eight. Two of the children lived until 3 and 3½ years of age, respectively, and these cases disprove the statements of some authors (Durozier,[19] Bass[20]) that "no case of mitral stenosis has been found reported in children between the ages of infancy and 5 years."

The most constantly associated defects were hypoplasia of the left heart and enlargement of the right ventricle, both being found in the ten cases in which these cavities were described. The state of the pulmonary artery was not mentioned so frequently, but in only one case was it described as not dilated. In five cases the aorta was found diminished in size, in two not diminished; in five cases it was not mentioned.

Reported Cases of Congenital Mitral Stenosis

Reporter	Date	Duration of Life	Mitral Stenosis	Hypoplasia of Left Heart	Hypoplasia of Aorta	Foramen Ovale: Open	Foramen Ovale: Closed	Ductus Arteriosus: Open	Ductus Arteriosus: Closed	Enlarged Right Ventricle	Dilated Pulmonary Artery	Endocarditis	Comment
Blackmore	1830	3½ years	+	+	?	..	+	..	+	+	?	0	Dyspnea; cyanosis; cough
Smith	1846	1 day	+	+	+	..	+	+	..	+	+	0	Dyspnea; cyanosis
Carmichael	1894	8 years	+	+	0	..	+	+	..	+	+	0	Dyspnea; clubbed fingers; cyanosis; polycythemia
Thérémin	1895	2 weeks	+	+	+	..	+	+	..	+	+	0	
Fisher	1902	1¼ years	+	+	+	..	+	+	..	+	+	0	Dyspnea; cyanosis
Donnally	1924	2½ days	+	+	+	+	..	+	..	+	+	0	Dyspnea; cyanosis
Parrot-Teissier	1894	1 day	+	+	?	?	?	?	?	+	?	+	
Gissler	1866	1 year	+	+	+	..	+	?	?	+	?	+	Dyspnea; cyanosis
Ayrolles	1885	10 days	+	+	?	+	..	+	..	+	?	+	Dyspnea; cyanosis
Sansom	1890	2 months	+	?	?	?	?	?	?	?	?	+	
Fischer	1909	6 weeks	+	?	?	?	?	?	?	?	?	+	Influenza 6 weeks before birth (mother)
Kockel	1909	2 days	+	+	0	+	..	?	?	+	0	+	Acute bronchitis 6 weeks before birth (mother)

EFFECTS OF CONGENITAL MITRAL STENOSIS

While Peacock[7] knew of but two of these twelve cases (Blackmore,[8] Ebenezer Smith[9]), he was yet able to explain with nicety the effects of congenital mitral stenosis:

Obstruction at the left side of the heart, as at the left auriculoventricular aperture or at the orifice or upper part of the aorta, would cause the current of blood to flow from the left auricle or ventricle into the right cavities, and thence, through the pulmonary artery and ductus arteriosus, into the aorta, and would equally determine the persistence of the foramen and duct or of an opening in the ventricular septum.

7. Peacock, T. B.: On Malformation of the Human Heart, Ed. 2, p. 159.

8. Blackmore, Edward: Report of a Singular Case of Malformed Heart, Edinburgh M. & S. J. **33**: 268, 1830.

9. Smith, Ebenezer: Premature Occlusion of the Foramen Ovale; Large Pulmonary Artery and Duct, and Contracted Left Heart, Tr. Path. Soc. London **1**: 52, 1846.

10. Carmichael, James: Congenital Heart Disease — Patent Ductus Arteriosus—Mitral Stenosis, Edinburgh Hosp. Rep. **2**: 298, 1894.

11. Thérémin, E.: Etudes sur les affections congénitales du cœur, Paris, 1895, Observation 80.

12. Fisher, Theodore: Two Cases of Congenital Disease of the Left Side of the Heart, Brit. M. J. **1**: 639, 1902.

13. Teissier, P. J.: Rapports du rétrécissement mitral pur avec la tuberculose, Clinique médicale de la Charité, Potain, Paris, 1894, p. 928.

14. Gissler: Congenital Hypertrophy of the Heart with Stenosis and Insufficiency of the Mitral, Aerztl. Mitt. **20**: 109, 1866.

15. Ayrolles, Pierre: Endocardite congénitale généralisée; obliteration de l'orifice mitral; cloisonnement de l'orifice tricuspide, Rev. mens. d. mal. de l'enf. **3**: 222, 1885.

16. Sansom, A. E.: The Pathological Anatomy and Mode of Development of Mitral Stenosis in Children, Tr. M. Soc. London **13**: 143, 1890; Am. J. M. Sc. **99**: 229, 1890.

17. Fischer, B.: Ueber eine kongenitale Aorta- and Mitralstenose. Verhandl. d. Ges. deutsch. Naturforscher u. Aerzte, Leipzig **2**: 43, 1909.

18. Kockel, R.: Beitrag zur Kentniss der angeborenen Endocarditis, Verhandl. d. Ges. deutsch. Naturforscher u. Aerzte, Leipzig **2**: 39, 1909.

19. Durozier, P.: Du rétrécissement mitral chez le foetus et chez l'enfant, L'union méd. **52**: 171, 1891.

20. Bass, M. H.: Mitral Stenosis in Young Children, Arch. Pediat. **33**: 107, 1916.

In all of the cases, dyspnea and cyanosis began shortly after birth; in Blackmore's patient, who lived three and one-half years, cough also was present for a long time before death, while Carmichael's patient, who lived until 3 years of age, had clubbed fingers and polycythemia.

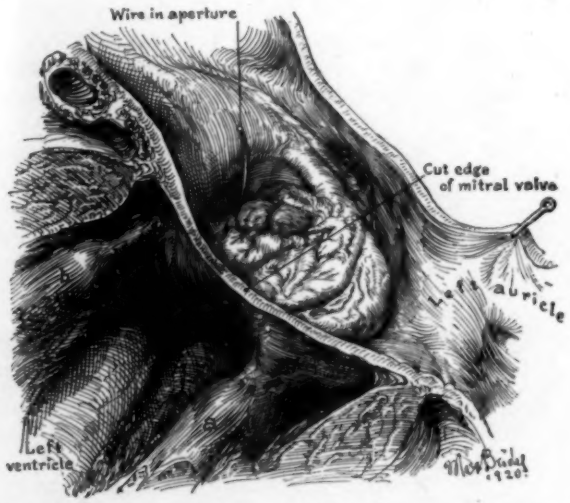

Fig. 4.—Congenital stenosis of the mitral valve; magnification, 10 diameters. The left auricle is spread open so that the mitral valve may be seen from above. The surface of the valve is formed of folds and corrugations, and the tissue is baggy and redundant, but it is thin and firm and may be pressed out smooth. A small wire passes through the orifice of the valve and is seen extending into the left ventricle below. This small aperture constituted the only means by which blood could enter the ventricle. The hypoplasia of the left heart, the dilatation and hypertrophy of the right ventricle, the enlarged pulmonary artery forming with widened ductus arteriosus and aorta the main thoracic trunk, and deficient interauricular septum, are doubtless all dependent on this primary malformation, an extreme grade of mitral stenosis.

Not all of the cases reported in the literature as congenital mitral stenosis may be accepted as such, for some authors (Swett,[21] Kelly,[22] Huchard and Berbouignan,[23] and Pawlinow [24]) offer very unconvincing evidence of the congenital origin of their cases.

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VARIATIONS IN THE ANASTOMOSIS OF THE CORONARY ARTERIES AND THEIR SEQUENCES *

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AND
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Anastomoses between the branches of the coronary arteries and with the arteries of surrounding structures have been quite definitely established by experimental ligation in animals, clinical observations combined with necropsy dissection, injection of the coronary arteries with subsequent corrosion of the extravascular tissues of both normal and diseased human hearts, and roentgenologic studies. Such studies have been made over a long period. Many of the earliest investigators failed to draw any conclusions at all regarding anastomoses and simply noted that the animals died. Among these are Chirac,[1] who used dogs, and Ericksen [2] and Panum,[3] who used both dogs and rabbits. Panum's experiments made with living animals were ingenious, for he put black melted wax into the innominate vein and then clamped the aorta to secure its entrance into the coronary arteries. In 1880, Samuelson and Bezold,[4] also using dogs and rabbits, concluded that the coronary arteries must vary to account for death following ligation.

A terminal nature of the circulation dependent on "end arteries" was probably first applied to the coronary arteries by Cohnheim,[5] because by ligating one or another coronary artery in curarized dogs he brought the heart to a standstill in two minutes. His conclusions were modified by Kolster [6] and later by Porter,[7] who, by studying infarct formation by coronary ligation in dogs, found that the animals did not necessarily die. The reason for this was demonstrated by Spalteholz [8]

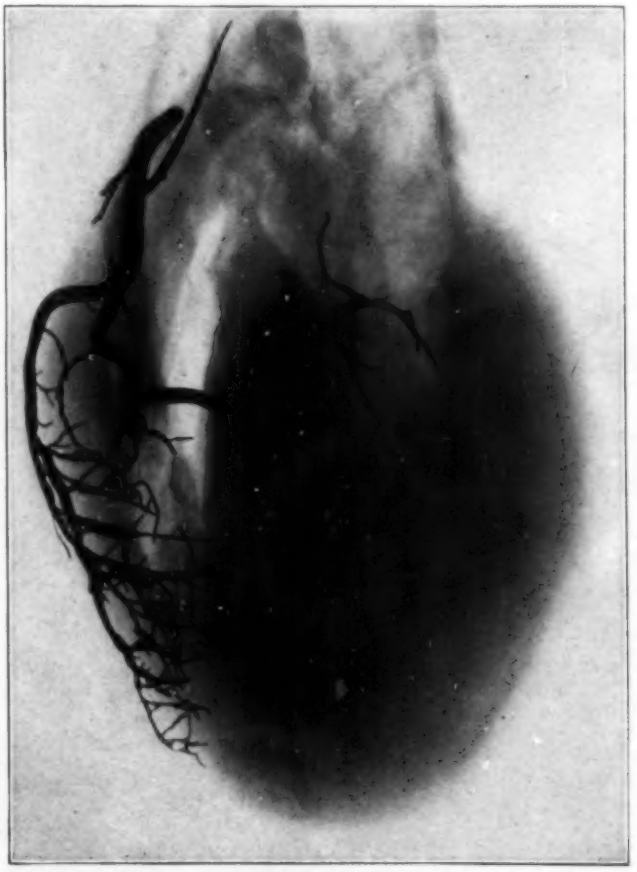

Fig. 1.—Right coronary artery of normal human heart injected with mercury.

and by Hirsch,[9] who found after coronary ligation in dogs and monkeys that the region infarcted was always

21. Swett, J. A.: Case of Congenital Obstruction and Imperfect Closure of Mitral Valve, New York M. Times **4**: 4, 1855.
22. Kelly, C.: Disease of Mitral Valve During Intra-Uterine Life, Tr. Path. Soc. London **21**: 91, 1870.
23. Huchard and Bergouignan: Communication interauriculare, rétrécissement mitral et aplasie arterielle d'origine congénitale, Bull. et mém. Soc. méd. d. hôp. de Paris **18**: 757-760, 1901.
24. Pawlinow, C.: Kongenitale Mitralstenose, Berlin, 1909.

* From the pathologic laboratories of Rush Medical College, and the Presbyterian Hospital.

1. Cited by Gross, Louis: The Blood Supply to the Heart in Its Anatomical and Clinical Aspects, New York, Paul B. Hoeber, 1921.
2. Ericksen: On the Influence of the Coronary Circulation on the Action of the Heart, London M. Gaz. **2**: 561, 1842.
3. Panum: Experimentelle Beitrage zur Lehre von der Embolie, Virchows Arch. f. path. Anat. **26**: 311, 1862.
4. Samuelson and Bezold, cited by Cohnheim (Footnote 5).
5. Cohnheim: Ueber die Folgen der Kranzarterien Verschliessung für das Herz, Virchows Arch. f. Path. Anat. **85**: 502, 1881.
6. Kolster: Experimentelle Beitrage zur Lehre der Myomalacia Cordis, Skandin. Arch. f. Physiol. **4**: 1, 1892.
7. Results of Ligation of the Coronary Arteries, J. Exper. Med. **1**: 46, 1896.
8. Spalteholz: Die Coronararterien des Herzens, Anat. Anz. **30**: 141, 1906.
9. Hirsch: Coronararterien in Herzmuskel, Deutsch. med. Wchnschr. **20**: 790, 1907.

smaller than the region supplied by the ligated artery. Just what branches of the coronary arteries that could be so ligated and cause no myocardial standstill was subsequently studied by Miller and Matthews,[10] who, in addition to confirming the work of Spalteholz, found no serious disturbance of the heart in dogs following the ligation of the left coronary artery, provided the ligation was distal to the septal branch.

By dissection of human hearts, Thebesius [11] and later Haller [12] and Morgagni [1] called attention to anastomoses between the coronary arteries. Early in the nineteenth century, Caldini [1] found similar anastomoses, and in the latter part of that century, Beraud and Langer [1] first demonstrated anastomoses between the coronary arteries and those of adjacent structures.

Fig. 2.—Right and left coronary arteries injected.

The inadequacy of communicating branches in human hearts is well demonstrated by the scars of the myocardium following partial or total occlusion of one or another coronary artery. This Huber [13] recognized from the study of seventeen human hearts removed from the bodies of persons dying of coronary arterial disease, either suddenly or several hours or days after the acute attack, and in all he found myocardial scars. Silverthorn [14] arrived at a similar conclusion from the study of one human heart with total thrombus occlusion of the mouth of the left coronary artery. Barth,[15] from the study of a thrombus-occluded right coronary artery, even went so far as to favor Cohnheim's [5] view of "end arteries." One of us,[16] in discussing the pathology of angina pectoris, studied sixty human hearts removed from the bodies of persons who died from difficulty with the circulation of blood in the coronary arteries, or with lesions generally regarded as caused by such difficulty. Thirty-four were due to fibrous myocarditis with sclerosis of the coronary arteries, and twenty-six to more or less acute occlusion by thrombosis or embolism. The conclusion was that, although collateral anastomoses existed between the coronary arteries and those of adjacent structures, yet with sclerosis or with more acutely developing obstruction from other causes, the compensatory circulation may prove inadequate or not be established promptly enough to prevent sudden death.

That gradualness of occlusion of a coronary artery is important for the development of an adequate collateral anastomosis was first recognized by Galli,[17] who found no gross or microscopic change of the myocardium following total occlusion of the mouth of the right coronary artery. Merkel [18] likewise found no myocardial change following gradual occlusion of the left. It would seem, then, that an absence of myocardial change following occlusion of a coronary artery demands that the occlusion be brought about slowly.

This opinion received support from the study by Amenomiya [19] of the relationship between the papillary muscles and diseased coronary arteries in eleven human hearts removed from the bodies of patients who died from heart failure. He found either infarcts or wedge-shaped scars, which he ascribed to a sudden occlusion of a relatively large artery. Herrick,[20] from clinical observations, arrived at the conclusion that the variation in anastomoses, the size of the vessel occluded and the condition of the remaining branches are all factors related to a failure for death to result abruptly with coronary artery thrombosis or embolism.

The new corrosion methods, first, though crudely, introduced by Hyrtl,[11] marked the beginning of a more thorough understanding of coronary anastomoses. He injected a metallic alloy with a low melting point, and then digested the extravascular tissues with acids. Merkel [18] first used substances for injection impenetrable to the roentgen ray, and in thirty-four normal and diseased human hearts was able to demonstrate anastomoses. He also observed that the left coronary artery filled when injection was made through the mouth of the right.

The following year, Merkel's [18] work was confirmed by Spalteholz,[8] who, in addition to having made experimental ligations of coronary arteries in dogs, used chrome yellow and gelatin for injection purposes and then digested the extravascular tissues by acids. He studied twenty-eight human hearts, and located the anastomoses beneath the epicardium and endocardium and in the muscle substance. Using the same method

10. Miller, J. L., and Matthews, S. A.: Effect on the Heart of Experimental Obstruction of the Left Coronary Artery, Arch. Int. Med. **3**: 476 (June) 1909.
11. Cited by Spalteholz (Footnote 8).
12. Haller, cited by Amenomiya: Virchows Arch. f. path. Anat. **199**: 87, 1919.
13. Huber: Einfluss der Kranzarterienerkrankungen auf das Herz, Virchows Arch. f. path. Anat. **89**: 236, 1882.
14. Silverthorn: Disease of the Coronary Arteries and Its Effects, Canadian Practitioner **23**: 193, 1898.
15. Barth: Plötzlicher Tod durch Verstöpfung der Kranzarterie, Deutsch. med. Wchnschr. **22**: 269, 1896.
16. LeCount, E. R.: Pathology of Angina Pectoris, J. A. M. A. **70**: 974 (April 6) 1918.
17. Galli: Ueber anastomotische Zirkulation des Herzens, München. med. Wchnschr. **50**: 46, 1903.
18. Merkel: Zur Kentniss der Kranzarterien der menschlichen Herzens, Verhandl. d. path. Gesellsch. Stuttgart **10**: 127, 1906.
19. Amenomiya: Ueber die Beziehungen zwischen Koronararterien in papillar Muskeln in Herzen, Virchows Arch. f. path. Anat. **199**: 87, 1919.
20. Herrick, J. B.: Clinical Features of Sudden Obstruction of the Coronary Arteries, J. A. M. A. **59**: 2015 (Dec. 7) 1912.

and eighteen human hearts, von Redwitz [21] confirmed the observations of Spalteholz, and concluded that the coronary arteries are not end arteries, but, when suddenly occluded, may cause ischemic changes, which are not likely with slow occlusion.

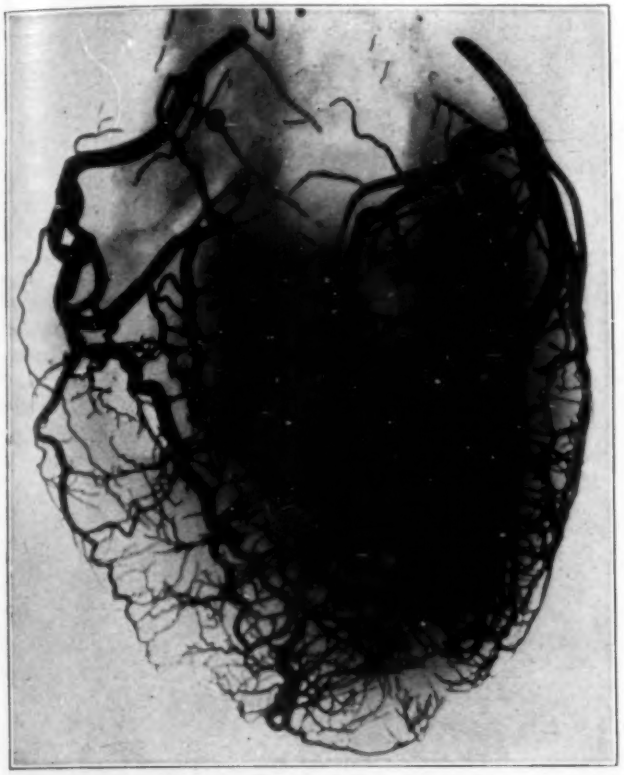

Fig. 3.—Normal human heart without demonstrable precapillary anastomosis.

Nussbaum [22] found that it was impossible to inject completely all the capillaries of the coronary arteries with liquid petrolatum. He concluded that the anastomoses are not functionally adequate, and that to prevent death from myocardial infarction the anastomosing vessel must have the same diameter as the one occluded. On the other hand, Smith,[23] using barium sulphate, supplemented with stereoscopic roentgenograms, found in normal human and dog hearts anastomoses mainly between many small vessels, which he believed numerous and large enough to function.

Recently Crainicanu [24] and also Gross [25] have studied the arrangement of the blood vessels of the heart, using roentgenograms after such injections and corrosion methods as have been mentioned. Crainicanu found anastomoses in the septum, walls of the ventricles, region of the Kieth-Flack node and the papillary muscles. Gross came to the conclusion that the heart is abundantly provided with capillary and precapillary anastomoses which are normally not in use, so that they are inadequate for emergencies but may become adequate with gradual obstruction.

21. Von Redwitz: Der Einfluss der Erkrankungen der Coronararterien auf die Herzmuskeln mit besonderer Berücksichtigung der chronischen Aortitis, Virchows Arch. f. path. Anat. **197**: 432, 1909.
22. Nussbaum: Ueber das Gefasssystem des Herzens, Arch. f. mikr. Anat. **80**: 450, 1912.
23. Smith, F. M.: Concerning the Anatomy of the Coronary Arteries, Am. J. M. Sc. **156**: 706 (Nov.) 1918.
24. Crainicanu, A.: Anatomische Studien über die Coronararterien und experimentelle Untersuchungen über ihre Durchgängigkeit, Virchows Arch. f. path. Anat. **238**: 1, 1922.
25. Gross, Louis: The Blood Supply to the Heart in Its Anatomic and Clinical Aspects, New York, Paul B. Hoeber, 1921.

It is apparent from the conclusions arrived at by the various investigators mentioned and by the use of a number of different methods that the idea of an absence of alteration of the myocardium with gradual occlusion of the main branch of one coronary artery has finally won considerable approval. Its acceptance has come largely from the reports of careful studies of single cases, such as those of Galli,[17] who found an occlusion due to sclerosis and fresh thrombus formation; of Merkel [18] with total occlusion from sclerosis; of Grayston [26] with occlusion due to an aneurysm, and that reported by one of us [27] of occlusion of the right coronary artery mouth by syphilis.

Some of the difficulty in understanding coronary disease of the human heart and its sequences is directly attributable to a general disposition to regard the coronary arteries and their entire arterial bed as an anatomic "invariable," whereas such is certainly not the case. Not only are there variations which we must admit are consistent with normal conditions, but a still greater variation is brought about by disease; and these two sorts of variations altogether include a great many differences in the size, number and distribution of the branches of the coronary arteries, which may either play a rôle in collateral circulation when the blood supply through one coronary is abruptly interfered with, or by their total or partial absence prevent any such compensation, and these are well brought out by the following examination.

Twenty-six human hearts were studied, mostly from males between the ages of 15 and 70 years. They were removed by cutting widely through the large vessels

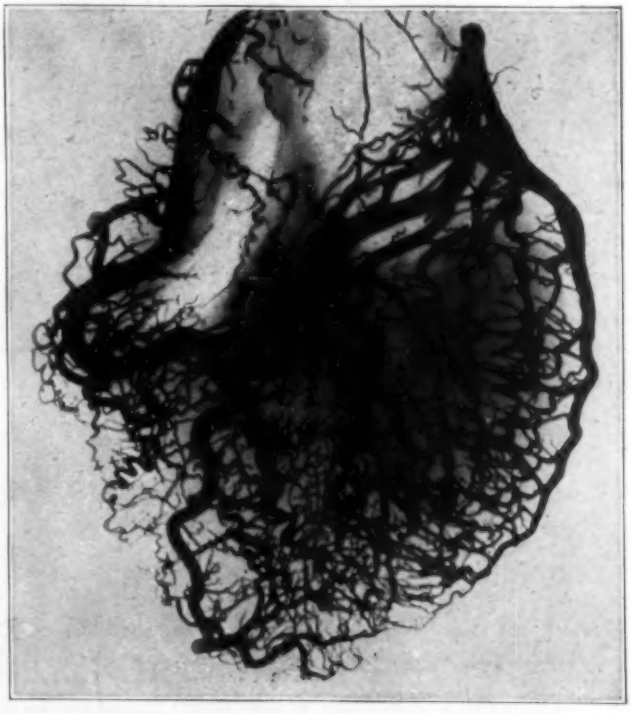

Fig. 4.—Normal human heart whose arterial system filled through the mouth of one artery with moderate degree of anastomosing vessels.

and then placed in the icebox for from twelve to twenty-four hours to allow rigor mortis to disappear. All were injected with metallic mercury, under a pressure of from 125 to 150 mm., through a cannula tied into the

26. Grayston: Cook County Hospital Rep. **3**: 280, 1906.
27. Oberhelman, H. A.: Tr. Chicago Path. Soc. **53**: 57, 1919.

mouth of one coronary artery. A number of injections were made under the fluoroscope. In some the mercury broke through the subendocardial vessels and escaped into the ventricles. In seventeen, the entire arterial system filled through the mouth of one artery, the mercury appearing at the mouth of the other in from one to three minutes. In nine, both arteries had to be injected separately to fill the arterial system, even after prolonged injection through the mouth of one. Stereoscopic roentgenograms were made of each heart and from different angles. In a few of the nine hearts, after the filling of one artery (Fig. 1), plates were made before injecting the other (Fig. 2). After such examinations, pieces were taken from the base, middle and apex of the left ventricle, the septum and right ventricle for microscopic examination.

Fig. 5.—Human heart with narrowing (*A*) of the left descending and (*B*) of the right coronary artery by calcium, with extensive collateral anastomosis in the septum and wall of the left ventricle and apex.

In one group of nine hearts there was no evidence of collateral anastomoses (Fig. 3), myocardial disease or arterial change except for a few small, widely scattered, soft, yellow places in the large arteries of one heart. Both arteries of these nine hearts had to be injected separately to fill the arterial system. The absence of demonstrable anastomoses, according to some investigators, may be due to the inability of the heavy metal to penetrate the finer capillary network, the precapillary network alone being demonstrated. The only deduction warranted is that, with the method employed, there were neither capillary nor precapillary anastomoses demonstrable in these hearts. They were obtained from the bodies of persons between the ages of 15 and 55, most of whom died from external violence, and none from causes affecting the heart or its blood supply. In these hearts there was no lesion for which a collateral anastomosis was needed, and the conditions were all consistent with health, with the trivial exception noted. The outstanding feature of these nine hearts is the absence of branches connecting the two arteries, and concerning this there are two noteworthy comments: that (1) with sudden obstruction of the circulation in one artery the other would most certainly have been inadequate, and (2) with gradual occlusion the development of an adequate collateral circulation might have resulted.

In another group of five hearts there was no myocardial or arterial disease, and in these respects they were essentially like the nine just mentioned, but in addition possessed definitely demonstrable anastomoses because (1) the entire arterial system filled through the mouth of one artery; (2) the mercury was seen passing from the branches of one into those of the other with the aid of the fluoroscope, and (3) a greater anastomosing network was found (Fig. 4). These hearts were removed from the bodies of persons between the ages of 30 and 50 years who died either from external violence, disease or other condition which failed to alter the heart or its circulation. In one death (from barbital poisoning) the right coronary was definitely small and the left comparatively large, and in another the reverse obtained. In two the anastomoses occurred between the right coronary and left descending branch, in two others between the right coronary and left circumflex branch, and in one between the right coronary and both left descending and circumflex branches. In these five hearts there was likewise no lesion for which a collateral anastomosis was needed, but nevertheless a definite collateral circulation was demonstrable, and it may be assumed that the arteries in these five hearts would have allowed a far more adequate anastomosis to maintain function and preservation of the myocardium with either sudden or gradual occlusion.

In a third group of four hearts there was no myocardial change either grossly or microscopically, but diseased arteries were present with definitely demonstrable collateral anastomosis (Fig. 5). They were removed from the bodies of persons between the ages of 20 and 65 years, two dying from interference of coronary circulation, one from influenzal pneumonia, and one from external violence. In two, the arteries were definitely calcified, with narrowing of the lumen with anastomoses demonstrable between the right coronary and left descending branch; in one, the mouth of the right coronary was narrowed to 1 mm. in diameter by syphilis, and with anastomoses between the right coronary and both left descending and circumflex branches; in another, the arteries were partially calcified, with narrowing and with anastomoses demonstrable in the same regions. In these hearts there was a need for collateral circulation that was adequate entirely to preserve the myocardium and maintain function for some time. The occluding process in these hearts was slow, and therefore allowed the arteries to develop a maximum measure of safety. These conditions in these four may be regarded as examples of what might have taken place in the hearts of the second group, had a need for a greater collateral circulation arisen.

In a final group of eight hearts there were extensive myocardial changes, almost or total occlusion of one or another artery, and abundant collateral circulation. They came from the bodies of persons between the ages of 42 and 70 years, whose deaths were either sudden or a matter of only a few hours. In six, the coronary arteries were markedly calcified with definite narrow-

ing, with the occlusion in two made complete by a fresh thrombus, and in these six the anastomoses had developed between the right coronary and both left descending and circumflex branches. Of the remaining two, the mouth of the right coronary was almost occluded in one and completely occluded in the other (Fig. 6)

Fig. 6.—Human heart with total occlusion of the right coronary artery mouth (*A*) and a small right coronary artery; abundant anastomosis in the septum, apex and left ventricular wall.

by syphilis, and in these the collateral anastomoses occurred between the right coronary and left descending branch. The myocardial changes of this group consisted generally of scar tissue, necrosis, hemorrhage and cellular infiltration, and the regions involved correspond to the regions supplied by the involved arteries, but are always much smaller. In these hearts there was likewise a need for a collateral circulation which was adequate but only for a time, death being more or less sudden.

SUMMARY

1. A precapillary anastomosis between the branches of the two coronary arteries is shown by the escape of metallic mercury from the mouth of one of them in from one to three minutes after its introduction in the other with from 125 to 150 mm. of pressure, and when observed under the fluoroscope this demonstration is most convincing.

2. There are at least two factors concerned with disease of the coronary arteries and its sequences which are highly important, and each possesses so much of variation that they are strictly comparable to the "variables" of mathematics. One is the considerable difference that the arterial bed of the myocardium may possess normally as to anastomosis between the branches of the two coronary arteries. The other is the time element, whether narrowing in the channels of the branches of either or both arteries, or total occlusion by any process whatsoever occurs abruptly or slowly; for, with the more gradual occlusion, a marked compensatory anastomosis may be developed.

We suggest that failure to recognize the inconstancy of these two factors is in part responsible for the large literature dealing with the subject, and for many of the misunderstandings with which it has been involved.

GANGRENE IN THE NOSE COMPLICATING DIABETES

CHESTER H. BOWERS, M.D.
LOS ANGELES

The purpose of this brief report is to call attention to a condition of gangrene in the nose in young children complicating diabetes. In a review of the literature and of the standard textbooks of medicine and of diseases of the nose, no mention was found of gangrene of the nasal septum and only two cases of gangrene in young subjects. One was the case of a girl, aged 19, in whom gangrene developed after a needle operation for cataract; sloughing and gangrene of the orbital tissue developed, and was followed by death from diabetic coma. The other case was that of gangrene of the lung in a child, aged 8 months.

No case of gangrene of the nose was discovered, but Sturges, in 1892, reported a gangrene of the lip in a diabetic patient, aged 64:

> The patient thought he had a cold sore; the right upper lip became swollen; the swelling extended to the molar region laterally. This was followed by a slough, and fairly rapid healing followed. An interesting point in the history was that prior to the gangrene the saliva had almost ceased in the patient's mouth. During the period of reaction, after the gangrene had formed in the lip, the saliva flowed once more.

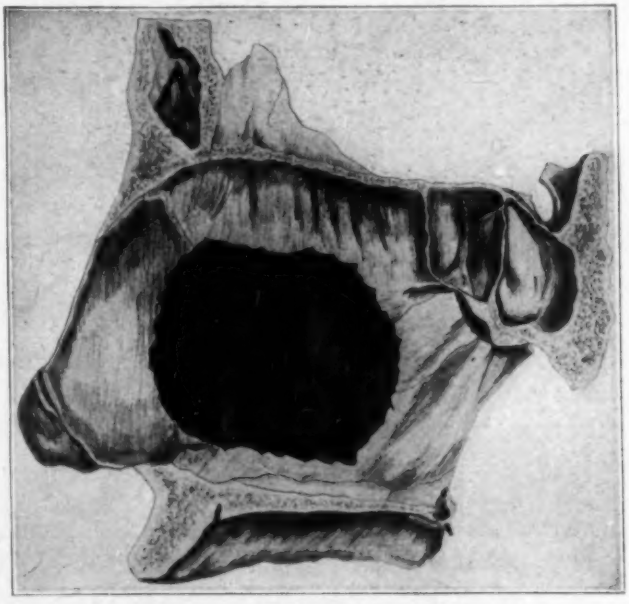

Fig. 1 (Case 1).—Perforation of nasal septum following gangrene, one month after onset.

It is well known that patients with diabetes are subject to gangrene due to several factors; one is the increased vulnerability of the tissues to the attacks of micro-organisms. That this vulnerability exists is

shown by the tendency of diabetic patients to be affected with boils and carbuncles. The saturation of the tissues with sugar offers a special inducement to microorganisms to invade the body, for nearly all bacteria grow more freely on a medium containing sugar. Another possible factor in the production of gangrene in diabetic patients is the presence of neuritis, which, either by interfering with sensation or by cutting off trophic impulses, favors degenerative processes.

Current conceptions are so hazy as to the causation of diabetic gangrene that it may not be amiss to give here a brief outline of the pathologic conditions that have been found responsible for this condition. I may anticipate by saying that diabetic gangrene is, in truth, a process of mortification directly referable to extensive arterial disease, the arteries being atherosclerotic, often occluded over a large part of their course, usually by obturating and calcific masses, less commonly by virtue of secondary thrombosis.

FOUR GROUPS

Buerger,[1] after a study of 250 cases of gangrene, classifies them under four heads—arteriosclerotic, thrombotic gangrene, thrombo-angiitis obliterans, and embolic and thrombotic gangrene.

Arteriosclerotic Gangrene.—In this group there is well advanced arteriosclerosis, which is in no way distinguishable from the vascular lesions associated with diabetic gangrene. Characteristic of both the diabetic and the arteriosclerotic groups is the involvement of the larger arteries, primarily by an affection that involves the wall of the vessel, secondarily by a lesion of occlusion, usually due to the production of degenerative

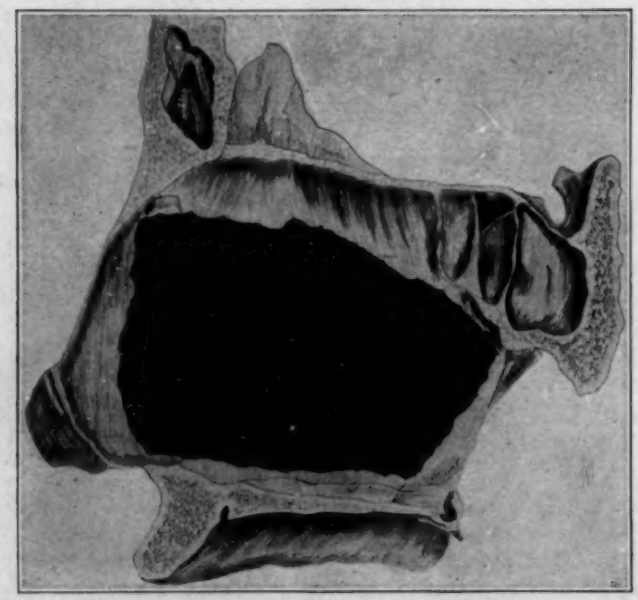

Fig. 2 (Case 3).—Perforation of nasal septum following gangrene, six months after onset.

atheromatous and calcific masses, more rarely by the presence of organized thrombi.

Thrombotic Gangrene.—There is another group of cases, which occurs very frequently after the age of 50. Although the arteriosclerotic process is but moderately pronounced, an occlusive thrombosis suddenly develops, usually in the peripheral vessels. In these cases we see mild or moderate lesions of arteriosclerosis with a superimposed complete occlusion by a thrombus.

Thrombo-Angiitis Obliterans.—The name thrombo-angiitis obliterans was proposed in 1908 for that interesting group of cases of presenile gangrene previously described under the name endarteritis obliterans. Pathologic studies have shown that we are dealing here with an acute inflammatory process involving the

Fig. 3 (Case 3).—Sequestrums removed from septum at one sitting.

superficial veins, and the deeper arteries and veins, followed by complete occlusion through the formation of red, obturating thrombi, and that the stage of healing follows through the organization of the clot and resorption of the products of the acute inflammatory process.

Embolic and Thrombotic Gangrene.—This may occur either in cases in which the vessels are absolutely normal, or, somewhat more frequently, in cases in which the atherosclerotic process is present. Both diabetic patients and patients not affected with this disease may be taken with sudden occlusion of the arteries and veins.

In brief, an extensive atherosclerotic process is the usual pathologic lesion. In thrombo-angiitis obliterans, however, we have a distinct entity, not at all related to those diseases of the vessels previously described, in all probability of inflammatory nature, the inciting organism being unknown. As for the embolic gangrene, this may or may not be associated with disease of the vessel wall.

As to the age of gangrene patients, of twenty-two from the records of the University Hospital of Pennsylvania, the youngest was 34, two were 48, one was 50, another 52, ten were from 57 to 60, six from 63 to 70, and the oldest was 72. In the cases of gangrene in the nose reported here, all were under 11.

As to the location of the gangrene, in a series of 133 cases of diabetes and with gangrene in fifty-seven, thirty-five were of the lower extremity, seven of the lungs, three of the hand, two of the pleura, and one of the shoulder.

It is more prevalent in the better classes and is equally distributed as to sex.

REPORT OF CASES

CASE 1.—A. B., aged 4 years, 8 months, referred by Dr. Bertnard Smith, lived in Japan until June, 1919. During infancy the patient was well and strong, and up to the onset of the present trouble was never seriously ill. A

1. Buerger: The Pathology and Diagnosis of So-Called Diabetic Gangrene, Archives of Diagnosis, April, 1915.

tonsillectomy was performed in 1919 because of frequent colds. There was no history of diabetes in the family. Both parents and one younger sister were well. The patient began to lose weight in November, 1919. The diabetes was of an acute type, with a rapid loss of tolerance. The patient had been under constant treatment since glycosuria was first discovered, but with only general diet control until January, 1920. The patient has not been sugar free for any period of time, and had constantly been losing weight. On strict diet, tolerance could not be held and the patient was rapidly going down hill, and, Dec. 12, 1921, the mother asked to be permitted to feed the patient liberally. This was done. About December 24, a swelling of the left eye appeared, a dark bloody nasal discharge and an odor of decomposition. The child was drowsy most of the time.

The child was pale and thin, showing a marked loss of body fat. The muscles were very thin and soft. The skin was dry and harsh. The child showed an extreme loss of strength. The lungs were clear. There was no change from normal on percussion and auscultation. The heart was normal in size; the sounds were clear; there was no murmur. The rate was 94. The liver, spleen and kidneys were not palpable. The colon was distended. The extremities were normal, except for loss in muscle and fat. The blood analysis was: sugar, 220 mg. per hundred cubic centimeters. The blood Wassermann reaction was negative.

December 25, the upper and lower lids of the left eye were edematous. The odor of decomposition was noticeable on entering the room. The patient was fussy and irritable, and slept much of the time. There was a bloody bilateral nasal discharge.

The nasal septum was black and gangrenous except for a small portion anteriorly, measuring about 4 mm. The left middle and inferior turbinates were gangrenous, black and dry. There was a bloody, purulent discharge from the floor of the nose on each side. The turbinates were normal on the right. The tonsils had been completely removed. A bloody, purulent discharge came from the epipharynx. All mucous membranes of the mouth were pale and anemic. Both drum membranes were normal. There was a swelling of the lids of the left eye, but no palsies and no proptosis, and the vision was normal.

Three days later a perforation appeared through the cartilage of the septum; the cartilage became detached inferiorly, and from time to time large gangrenous masses of tissue and sequestrums were removed. The septum showed a large perforation extending from about 4 mm. from the anterior extremity to a small strip posteriorly in the posterior end of the vomer; below, to the floor of the nose and above nearly to the cribriform plate of the ethmoid.

The swelling of the left eyelids became greater, and five days after the onset of the gangrene, an ulceration appeared in the roof of the mouth, in the midline about 2 cm. posterior to the upper incisor teeth, 2 cm. long and 4 mm. wide. This resulted in loss of tissue to the bony palate, but did not perforate through the bone.

The child's condition gradually became worse, and three days before death the skin under the left lid became gangrenous and black but did not slough.

The patient died of toxemia and coma, Jan. 30, 1922, five weeks after the onset of the gangrene.

CASE 2.—B. A., a boy, aged 10, referred by Dr. Harold Smith, weighed 8½ pounds (3.8 kg.) at birth and gained rapidly. He was breast fed, and had always been large for his size, but not obese. According to the mother, he had always been an exceptionally large eater, but had not been allowed to take sweets to excess. He had had polyuria for two and one-half years. The father was overweight, but otherwise well; the mother and two sisters and one brother were well. One aunt on the father's side had diabetes. Sugar in the urine had been discovered at a routine examination made at the onset of a severe attack of measles two years previously. The urine contained 6 per cent. sugar with a marked diacetic acid reaction. The child had been placed on a diet that caused him to become sugar free for nearly six months, when the parents began to have trouble controlling his diet. From that time on, he was very seldom sugar free for more than a few days at a time. In fact, it was found impossible to watch him closely enough to prevent frequent breaks in diet.

The terminal illness began, Oct. 10, 1922, with symptoms of a slight infection of the upper respiratory tract, without rise of temperature. Twenty-four hours later, a mild purulent otitis media in the right ear developed. The drum membrane was incised. There was drainage from the ear for four days. The left ear became congested forty-eight hours later, but subsided without treatment. At the height of the otitis media, there was a rise of temperature to 99.4 F. Then the temperature became normal, and the acidosis, which had become marked during the height of the infection, began to improve.

Eight days after the onset of the illness, the patient complained of a pain referred to the upper left first bicuspid, and spreading over the left cheek and left side of the nose in the area supplied by the second branch of the fifth nerve. The tooth had a cavity that had been filled and the filling partially dissolved. The dentist filled the cavity and relieved the pain, but an area of numbness of the same distribution developed.

Transillumination showed the antrums clear; the pupil and the orbit reflexes were present. The frontals were small and clear. The left middle turbinate was swollen. This could be shrunk down with cocain, 5 per cent.

The next day, the pain returned and became so severe that it seemed advisable to have the tooth extracted, on the chance that it might be infected. This was done under gas anesthesia, and there was immediate relief of the pain and numbness. The following day, the left eye was considerably swollen, and there was a rise of temperature to 99.4. The temperature continued elevated, and the swelling of the left side of the face increased in extent and degree. The left eye was completely closed, and the left side of the nose as well as the cheek was swollen. The middle turbinate was swollen and in contact with the septum. No pus was in the nose. There were no exophthalmos and no cranial nerve palsies.

On the morning of the 22d there was some swelling on the right side, chiefly about the root of the nose and the upper lid. During the day, the child's temperature went to 100, and he became delirious at times, but was mostly in a stupor. A bluish discoloration about the left eyelid was noticeable in the morning, and increased rapidly during the day. In the evening, the entire left cheek was cyanotic. He developed dyspnea, and was in coma from which he could not be roused. October 23, the area just described showed definite evidence of gangrene with a sharp line of demarcation. It involved the left lid, upper and lower, the left side of the nose, the left cheek as far out as the zygoma, and the left upper lip to the median line. This area was grayish purple and surrounded by a narrow zone of white about 2 mm. in width. The pulse was rapid, weak and of poor quality. Death occurred at noon.

There was some discharge of blood from the upper lip, so that sloughing had already begun at this point. Diagnosis was made of thrombosis of the terminal branches of the internal maxillary artery.

CASE 3.—M. S., a girl, aged 10, referred by Dr. Bertnard Smith, had never been robust. She had had frequent head colds and sore throat, but her tonsils had never been removed. Her appetite had always been eccentric. She never liked vegetables. There was no history of any severe illness. The father and mother and three other children were well. There was no diabetic history in the family. The patient had had diabetes mellitus for the last nine months. She first developed polyuria and polydipsia, and glycosuria was found. She had been given unweighed diet of restricted carbohydrates, without insulin.

The skin was dry and harsh, and there was an extreme loss of body fat. The muscles were thin and soft. The lungs were normal. The breath sounds were exaggerated. The heart was normal in size, with no murmur. The rate was 110. The liver, spleen and kidneys were not palpable. The blood Wassermann reaction was negative.

Six months before, and three months after the child was known to have diabetes, the patient became comatose. She was aroused to answer questions with difficulty. There was a strong odor of acetone on the breath, and a strong odor

of gangrene was noticeable. Both lids of the left eye were swollen. There was a bloody nasal discharge.

A black gangrenous mass was seen on the first inspection of the nose; this was the nasal septum. A large oval perforation of the cartilaginous septum could be made out. The septum was freely movable, being attached posteriorly and free on three sides. There was a large amount of bloody, purulent material in the floor of the nose. The left inferior and middle turbinates were covered with fibrinous exudate.

The mucous membranes of the mouth were pale and anemic. There was no ulceration of the mucous membranes of the palate. The tonsils were small and submerged, with very little cryptic exudate. Some bloody discharge appeared on the pharyngeal wall. On postnasal examination, a black gangrenous mass was seen filling the left posterior choana. The posterior view of the septum showed it to be gangrenous with the exception of a very narrow strip on the very extremity.

The child was in coma for ten days. She was given 20 units of insulin-Lilly daily, with marked improvement in the general symptoms. The swelling of the eyelids disappeared. Under frequent irrigation, the nose was kept free from discharge. The odor was decidedly that of gangrene at all times. Large sequestrums separated from time to time and were removed.

At present, six months after the onset of the gangrene, the child plays and runs about, and weighs more than she ever has before, but is on a carefully regulated diet with insulin.

Microscopic examination of sections from the decalcified tissue showed in some places a bony structure of normal appearance. In others, there was loss of normal striations, and the bone had a homogeneous appearance. In the marrow spaces, the tissue was necrotic and structureless or infiltrated by many polymorphonuclear leukocytes. No mucosa was present. The pathologic diagnosis was acute osteomyelitis and necrosis of the septum.

There was a large perforation through the septum, which was practically deficient except a narrow border anteriorly and a very narrow strip posteriorly. The posterior extremity was dusky and gangrenous in a portion, and it is questionable whether it will not eventually be lost. In Figure 3 can be seen some of the perpendicular plate of the ethmoid almost to the cribriform plate. Below, the septum has necrosed to the palatal process of the superior maxilla.

COMMENT

The patients in this series were young children, the oldest being only 10 years of age. The blood Wassermann reaction was negative in two cases of the group, and the case in which no Wassermann test was made there was a negative family history; the child was the eldest of four children, and it is reasonably certain that this child was not syphilitic. This was in the case of gangrene of the cheek, which is less suggestive of syphilis than the other two.

The common type of diabetic gangrene is that occurring in the lower extremity in elderly subjects, with advanced arteriosclerotic changes. In the cases just reviewed, the gangrene developed in children with young vessels, and obviously cannot be explained on an arteriosclerotic basis. Rather, I believe we should consider them a thrombosis of the type described as thrombo-angiitis obliterans; that in the presence of an infection an inflammatory condition resulted in the artery, which was followed by thrombosis and gangrene of the tissue distal to the thrombosed artery.

The discovery of insulin before the last case was treated is responsible for its favorable outcome, as contrasted with that of the two earlier cases.

1136 West Sixth Street.

Medical Cookery.—The University of Paris has opened an institute of alimentary hygiene where medical science will be applied to cooking. Instructors from the Pasteur Institute will lecture, although the work is largely practical.

IODIN DEFICIENCY AND PREVALENCE OF SIMPLE GOITER IN MICHIGAN

PRELIMINARY REPORT

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Commissioner, Michigan Department of Health
LANSING

That the state of Michigan has an abnormally high percentage of persons affected with goiter has been a matter of common knowledge for years, but of no great concern either to the public or to the medical profession. It was not until 1918 that the matter was given any serious consideration. The selective service regulations brought out the fact that northern Michigan and Wisconsin had a real public health problem to solve. Goiter was so prevalent that in some groups as high as 30 per cent. of the persons were incapacitated for army service, owing to disqualifying toxic goiters.[1] About this time our attention was focused on the work of Kimball and Marine in Ohio, the compilation of reports of whose work at Akron and Cleveland and other localities has been published.[2]

In the fall of 1919, instruction was given to all the traveling representatives of the Michigan Department of Health to collect information wherever possible as to the prevalence of goiter in various sections of the state. This personnel included the traveling tuberculosis clinic, medical inspectors, public health nurses and field workers from the laboratory. Reports coming to the commissioner's office indicated that it would be quite impossible to institute a state wide campaign for the administering of iodin without preparing the field with well organized, educational propaganda. The medical profession had thought little about the relation of iodin deficiency to simple goiter, and the public simply accepted the conditions as an environmental malady for which there was no relief. With the publication of Levin's second paper[3] in 1921, which showed that of 1,783 persons in Lake Linden, Mich., 1,146 had thyroid enlargement, the first local seed was sown for a goiter campaign. This lead was immediately followed up in January, 1922, when the department representatives, Dr. Thomas Marsden and Miss Romani, R.N., made a survey of Iron Mountain, Mich., which demonstrated that 54 per cent. of the persons examined had perceptible thyroid enlargements. Table 1 gives the distribution according to maternal nativity.

The publication of these facts in the state press, and the dissemination of the information by the bureau of education of the Michigan Department of Health through their lecturers, stimulated, in 1922, some interest in the cause and prevention of simple goiter. Accordingly, to foster this awakening and to get first-hand information as to the methods of procedure in use in Ohio by Marine and Kimball, Dr. Marine[4] was called from Montefiore Hospital, New York, to deliver an address before the annual conference of health officers of the state of Michigan, which was held at Lansing in December, 1922. An abstract of his talk was reprinted, and the state was circularized.

1. Levin, Simon: Goiters in Five Hundred and Eighty-Three Registrants, J. Michigan State M. Soc. **18**: 98 (March) 1919.
2. Marine, David; Lenhart, C. H.; Kimball, O. P., and Rogoff, J. M.: Prevention of Simple Goiter, Bull. Western Reserve Univ. **26**, July, 1923.
3. Levin, Simon: One Thousand One Hundred and Forty-Six Goiters in One Thousand Seven Hundred and Eighty-Three Persons, Arch. Int. Med. **27**: 421 (April) 1921.
4. Marine, David: The Prevention of Goiter, Public Health, Mich. Dept. of Health **11**: 23 (Jan.) 1923.

Shortly after the public health conference in 1922, Dr. C. C. Slemons, health officer of Grand Rapids, instituted a survey in that city.[5] Twenty-six thousand children returned 30 per cent. positive perceptible thyroid enlargements. With the completion of the Grand Rapids survey and its publication, the department was constantly receiving inquiries from all sections of the state as to the prevalence and means of prevention of goiter in their section. The two surveys in northern Michigan, one by Levin and one by the department, compared with the Grand Rapids survey, showed a very great difference in the number of individuals affected. Consequently, in conference with the advisory council of health, I decided to institute a careful survey of representative areas, so that some scientific data as to the prevalence of goiter in any given community could be determined with relative accuracy.

Wexford County is in the northwestern part of the Lower Peninsula, and inland from the Great Lakes. Macomb County is about midway of the southern half of the Lower Peninsula on the extreme east side, and is partially bordered by the waters of Lake St. Clair, whereas Midland County is in about the east central part of the Lower Peninsula, and is inland from the Great Lakes.

Consultation with Drs. W. J. Robinson and R. A. Smith of the Michigan State Geological Survey indicated that there is a fundamental geological consideration involved. A subsequent report will show an analysis of the geology of these areas and the iodin content of the water supply.

Taking advantage of the presence of Dr. O. P. Kimball[7] of Cleveland, who was in Lansing to address the conference of health officers and public health

TABLE 1.—*Distribution of Goiter at Iron Mountain, Mich., According to Maternal Nativity*

Mothers	Total No.	Enlarged Thyroid No.	Enlarged Thyroid %	Degree 1 No.	Degree 1 %	Degree 2 No.	Degree 2 %	Degree 3 No.	Degree 3 %
Native	176	105	59	75	71	21	20	9	8
Norwegian and Swedish	92	51	55	42	82	8	25	1	1
Canadian	34	18	52	13	72	3	16	2	11
Italian	158	66	41	54	81	11	16	1	2
English	25	10	40	8	80	2	20	0	0
Austrian	48	22	45	18	81	4	18	0	0
Finnish	18	5	27	5	10	0	0	0	0
Russian and Polish	6	1	16	1	100	0	0	0	0
German	6	4	66	3	75	0	0	1	25
French, Belgian and Dutch	6	4	66	3	75	1	25	0	0
Total	569	286	50.2						

Children of	Total No.	Enlarged Thyroid No.	Enlarged Thyroid %	Degree 1 No.	Degree 1 %	Degree 2 No.	Degree 2 %	Degree 3 No.	Degree 3 %
Native mothers	683	361	52	321	98	35	9	5	1
Norwegian and Swedish mothers	446	271	61	215	79	49	18	7	2
Canadian mothers	178	92	51	82	88	8	8	3	3
Italian mothers	798	435	54	351	80	81	18	3	1
English mothers	136	67	49	58	86	9	13	0	0
Austrian mothers	242	132	54	112	84	18	13	2	1
Finnish mothers	73	39	53	31	79	7	17	1	2
Russian and Polish mothers	30	18	60	11	61	5	27	2	11
German mothers	35	15	42	15	100	0	0	0	0
French, Belgian and Dutch mothers	31	15	48	14	93	1	6	0	0
Total	2,652	1,445	54.49						

McClendon,[6] after examining 100 specimens of water from various sections of the United States and tabulating the various goiter surveys that had been made, stated that it was his belief that the amount of simple goiter in the United States varied inversely with the amount of available iodin in the food supply of the areas. His data were so meager and the areas of the country covered so large that it was decided to choose the areas in Michigan to be surveyed for goiter only after a preliminary water survey for iodin content had been made.

IODIN SURVEY

Fifty samples of water were collected, of 15 gallons each, from localities representing the whole area of Michigan. The methods of analysis and final survey for the iodin content of waters in Michigan will be reported elsewhere. From this preliminary survey, four counties were chosen as showing the greatest differences in iodin content and representative of a cross-section of the population of Michigan. Six samples of water were collected in each county and an analysis made, with results as shown in Table 2.

FIELD SURVEY

As previously stated, the counties selected for this survey were chosen after a study of iodin content of the ground waters, and their location is shown on the map (Fig. 1).

It will be observed that Houghton County is in the northwestern part of the Upper Peninsula, and is partially surrounded by the waters of Lake Superior.

5. Reed, Torrance; and Clay, H. T.: A Survey of Thyroid Enlargement Among the School Children of Grand Rapids, Public Health, Mich. Dept. of Health **11**: 287 (Aug.) 1923.

6. McClendon, J. F.: Simple Goiter as a Result of Iodin Deficiency, Preliminary Paper, Method of Determining Iodin, J. A. M. A. **80**: 600 (March 3) 1923; Iodin and Prevention of Goiter, Science **56**: 269, 1922.

nurses, the field medical staff of the department, consisting of four clinicians and two medical inspectors, met with Dr. Kimball and made an examination of about 400 children in one of the schools of Lansing, and the staff was thoroughly drilled in the methods of classification used by Dr. Kimball. Dr. Kimball's classification included only visible enlargements of the thyroid. Visible, simple goiters and adenomas were divided into three classes, 1, 2 and 3, depending on the extent of the enlargement. Exophthalmic goiters were to be considered separately. None were found in the survey. The form of examination card used is shown in Figure 2.

TABLE 2.—*Differences in Iodin Content of Water*

Iodin Content, Parts per Billion

Macomb		Midland		Wexford		Houghton	
Mount Clemens	28.0	Midland..	18.0	Cadillac...	2.4	Houghton.....	None
Mount Clemens	20.0	Midland..	12.0	Cadillac...	0.8	Houghton Springs.....	None
Mount Clemens Spring.....	3.0	Midland..	11.6	Mesick....	None	Doelle Agricultural School	None
Romeo.....	None	Coleman.	0.7	Harrietta.	None	Calumet.....	None
Richmond.....	Trace	Sanford..	1.4	Manton...	None	Chassel.....	None
Utica.....	0.3			Harlan....	None	Hubell.....	None
	1.0					Lake Linden..	None
						South Range..	None
Average.....	8.7		7.3		0.5		None

An experienced organizer visited the county ahead of the survey staff and made arrangements for transportation and for the schedule of examinations in the schools. The cards were placed in the teachers' hands and were completely filled out in advance of the survey—an important administrative detail. When the

7. Kimball, O. P.: Endemic Goiter as a Public Health Problem, Public Health, Mich. Dept. of Health **12**: 59 (Feb.) 1923.

examining staff reached a school, each child was ready with his own card in his hand. The nurse took the card from the child and entered the result of the examination by making a circle around the letter or number, "N" (normal), "1," "2" or "3," as the case might be. Each medical officer was accompanied by a nurse, who did all the preparatory work and kept the records, each school being kept by itself.

Fig. 1.—Counties in which children were examined.

These cards were sent each day to Lansing, and a tabulation sheet was made, showing the results for each school. These, in turn, were compiled to show the results for each county. The compilation sheet is reproduced in Figure 3.

In Macomb County there were 10,258 examined, of whom 2,672 were found with goiter, or 26 per cent. Of the 5,152 boys examined, 79.9 per cent. were normal and 20.1 per cent. showed goiter. Of the 5,106 girls examined, 68 per cent. were normal and 32 per cent. showed goiter.

In Midland County there were 3,645 examined, of whom 1,191 showed goiter, or 32.7 per cent. There were 1,834 boys examined, of whom 75.6 per cent. were normal and 24.4 per cent. showed goiter. Of the 1,811 girls examined, 58.9 per cent. were normal and 41.1 per cent. showed goiter.

The total number examined in Wexford County was 3,984, of whom 2,216 showed goiter, or 55.6 per cent. Of these, 1,963 were boys, and of this number we found 52.4 per cent. normal and 47.6 per cent showed goiter. Of the 2,021 girls examined, 36.6 per cent. were normal and 63.4 per cent. showed goiter. It was observed that, in the rural portions of the county, the incidence of goiter was about 10 per cent. higher than in the city of Cadillac, which is the only city in the county.

In Houghton County, the most northerly county surveyed, there were 13,725 examined, of whom 8,835 showed goiter, or 64.4 per cent. Of the 6,860 boys examined, 41.9 per cent. were normal and 58.1 per cent. showed goiter. Of the 6,865 girls that were examined, 29.5 per cent. were normal and 70.5 per cent. showed goiter.

The total number examined in the four counties was 31,612, of whom 14,914, or 47.2 per cent., showed goiter. Of the 15,809 boys examined, 59.5 per cent. were normal and 40.5 per cent. showed goiter. Of the 15,803 girls examined, 46.2 per cent. were normal and 53.8 per cent. showed goiter.

Table 3.—*Detailed Results of Survey*

	Total Four Counties	Macomb County	Midland County	Wexford County	Houghton County
Number examined	31,612	10,258	3,645	3,984	13,725
Number with goiter	14,914	2,672	1,191	2,216	8,835
Percentage of goiter	47.2	26.0	32.7	55.6	64.4
Boys examined	15,809	5,152	1,834	1,963	6,860
Boys normal	9,404	4,114	1,387	1,029	2,874
Percentage normal	59.5	79.9	75.6	52.4	41.9
Boys with goiter	6,405	1,038	447	934	3,986
Percentage with goiter	40.5	20.1	24.4	47.6	58.1
Girls examined	15,803	5,106	1,811	2,021	6,865
Girls normal	7,294	3,472	1,067	739	2,016
Percentage normal	46.2	68.0	58.9	36.6	29.5
Girls with goiter	8,509	1,634	744	1,282	4,849
Percentage with goiter	53.8	32.0	41.1	63.4	70.5
Normal boys below scholastic grade, percentage	27.6	29.0	32.6	23.9	24.7
Goiter boys below scholastic grade, percentage	28.4	33.0	38.5	29.2	25.9
Normal girls below scholastic grade, percentage	16.4	19.0	18.1	11.4	12.5
Goiter girls below scholastic grade, percentage	19.8	25.0	28.2	21.2	16.3
Normal boys	9,404	4,114	1,387	1,029	2,874
No. 1 goiter (slight enlargement)	6,324	1,037	447	913	3,927
No. 2 goiter (moderate enlargement)	81	1	0	21	59
Normal girls	7,294	3,472	1,067	739	2,016
No. 1 goiter	8,329	1,626	743	1,201	4,759
No. 2 goiter	179	7	1	81	89
No. 3 goiter	1	0	0	0	1

Ages of Patients with Goiter	Total Four Counties		Macomb County		Midland County		Wexford County		Houghton County	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
5	244	260	29	28	12	13	36	28	167	131
6	380	421	62	68	23	46	50	52	245	255
7	490	542	84	104	42	55	67	60	297	314
8	543	612	94	123	43	56	78	87	328	344
9	640	660	109	116	52	75	85	112	294	306
10	706	817	132	168	65	83	97	111	412	455
11	709	812	132	150	44	61	104	120	420	472
12	669	801	101	177	48	73	101	129	419	512
13	645	892	105	184	35	72	113	130	392	506
14	502	860	87	161	43	67	76	96	356	486
15	406	740	68	182	28	52	58	115	267	390
16	306	456	26	79	5	31	37	81	140	266
17	118	226	15	57	2	31	23	60	78	178
18	45	175	3	19	2	19	7	30	22	107
Over 18	15	50	0	4	0	5	2	22	13	23
Not given	34	25	6	9	2	3	0	0	26	14

It will be observed that the existence of goiter was uniformly higher among girls than among boys, but not in any such proportion as was found in the reports published of the surveys at Grand Rapids, Akron and elsewhere, the proportion being approximately four girls to three boys. Among the boys, only eighty-one cases were found that classed as a No. 2 goiter, that is, moderately enlarged, and among the girls 179 were found as No. 2. The remainder fell in Group 1, or slightly enlarged. In the entire group, only one case was found of the classification of No. 3, and no cases of exophthalmic goiter.

MICHIGAN DEPARTMENT OF HEALTH
LANSING

Date.....

County ..... City ..... School .....
Name ..... Grade .....
Address .....
Sex ..... Age ..... Height ..... Weight .....
Birthplace ..... How long in county .....
Mother's birthplace .....
.....
Examination N-1-2-3-E
Pulse ..... Cardiac Examination ..... (over)
Special Remarks (over) Signature ..... M. D.

Fig. 2.—Examination card.

In the age distribution of these cases, it is found that the greatest number of cases among the boys, that is, the mode of the curve, is found at age 10, whereas among the girls this is found at age 12. This would seem to indicate that congenital cases run approximately even up to age 10, but that these seem to be reduced among the boys after this age, and there is not the apparent increase at adolescence that seems to be peculiar among the girls.

MICHIGAN DEPARTMENT OF HEALTH

GOITER SURVEY

_____ County

Township or City _____ School _____

Number examined _____ Normal - - Boys _____ Percent _____
Girls _____

Boys _____ Pathogenic - Boys _____ Percent _____
Girls _____ Girls _____

Percent Boys _____ Total Pathogenic _____ " _____
Percent Girls _____

Length of Residence Total 1 1 -1- 2 3 4 5 6 Over Not Given

Normal - - Boys _____
Girls _____

Pathogenic - Boys _____
Girls _____

MOTHER This County Elsewhere Not Given

Normal - - Boys _____
Girls _____

Pathogenic - Boys _____
Girls _____

Below Scholastic Grade

Normal - - - Boys _____ Percent _____ Girls _____ Percent _____

Pathogenic - Boys _____ Percent _____ Girls _____ Percent _____

Pathology N 1 2 3 Ex

Boys _____
Percent _____

Girls _____
Percent _____

Ages Pathogenic 6 7 8 9 10 11 12 13 14 15 16 17 18 Not Given

Boys

Girls

Water

Fig. 3.—Compilation sheet.

In relation to scholastic standing, it was found that among both girls and boys there was a definite increase in the number below scholastic grade among those affected with enlarged thyroid. In some of the counties, this was peculiarly marked. In Wexford County, whereas 23.9 per cent. of the normal boys and 11.4 per cent. of the normal girls were below grade, 29.9 per cent. of the goiter boys and 21.2 per cent. of the goiter girls were below grade. In Macomb County, 29 per cent. of the normal boys and 23 per cent. of the goiter boys, contrasted to 19 per cent. of the normal girls and 25 per cent. of the goiter girls, were below grade. In Midland County, 32.6 per cent. of the normal boys and 38.5 per cent. of the goiter boys, 18.1 per cent. of the normal girls and 28.2 per cent. of the goiter girls were below grade. The difference was the least marked in Houghton County, the normal boys showing 24.7 per cent. below grade, the goiter boys 25.9 per cent., the normal girls 12.5 per cent., and the goiter girls 16.3 per cent. It is probable that scholastic retardation is due to the fact that the disturbance of the function of any organ of the body is reflected to a greater or less degree in mental effort.

Although it was expected that the percentage of goiter would vary inversely with the iodin content of the water supplies, the very sharp difference that occurred in the four counties examined exceeded our expectations and has opened up a large field for detailed study, which will be carried out as soon as weather permits. It was found that localities separated only a few miles varied in percentage of thyroid enlargements in native children from 10 to 100 per cent. One notable instance of this where there are sufficient children for a satisfactory random sample was in the difference in percentage of thyroid enlargement between Mount Clemens, which had 26 per cent., and Romeo, 12 miles distant, which had 75 per cent. Mount Clemens has an iodin content in the city water supply of approximatley 25 parts per billion, while Romeo water does not contain a trace of iodin in 50 liters. There are many other striking variations in the percentage of thyroid enlargement in schools where the environmental surroundings of the children were practically identical. Fifty instances of differences were noted, and samples of water are being examined so that we can present at a later date more detailed numerical relationship between the iodin content of the water supply and the percentage of thyroid enlargement in the community. Our preliminary survey of about 100 samples of water distributed nearly uniformly over the whole state indicates that we can predict a gradual increase as we pass from south to north in the percentage of goiter from the minimum figures shown in Macomb County to practically 100 per cent., as shown in certain areas in the northern peninsula. Any analysis of the percentage of goiter in relation to iodin content must take into account shipped-in food, and habits of diet, as well as the iodin available in the local food supply, as indicated by the iodin content of

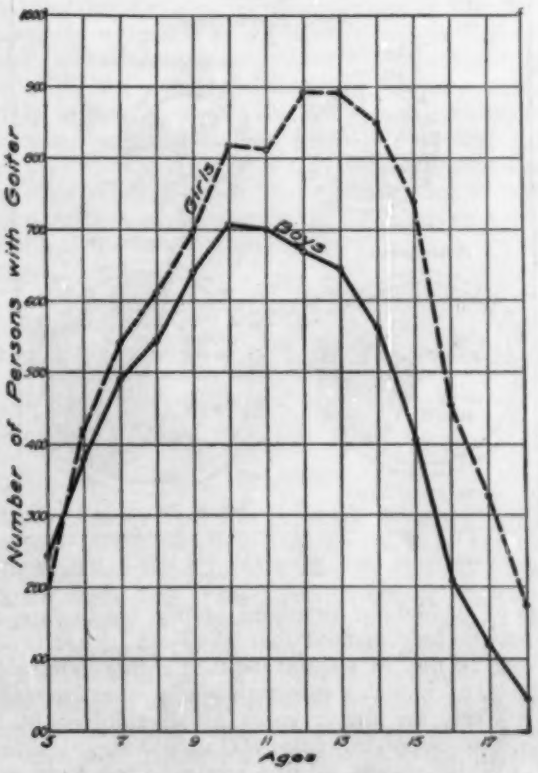

Fig. 4.—Comparative incidence of goiter among boys and girls.

the water supply. Although there is a great deal of work to be done before the final report can be made on the prevalence of simple goiter in Michigan, we believe that the four years' study that has led up to this preliminary report has given us sufficient data so that a method of prevention can be recommended that will be fundamentally adapted to remedying the iodin deficiency for the whole population of the state.

METHODS OF PREVENTION

While it is almost universally agreed through the civilized world that iodin deficiency is the cause of simple goiter,[8] there has been a great deal said, pro and

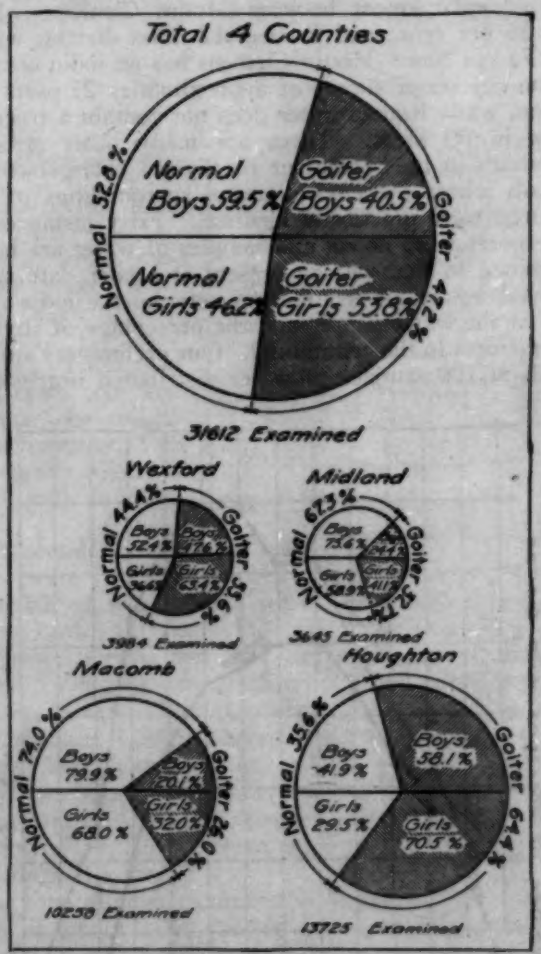

Fig. 5.—Incidence of goiter among boys and girls in four counties.

con, as to methods of supplying iodin. Up to date, the most satisfactory method that has been in use is that of giving 10 mg. of sodium iodid in a chocolate tablet, or 10 mg. of iodin as iodostarine in a chocolate tablet once a week for forty weeks to all children in the schools, thus supplying from 300 to 400 mg. of iodin a year.[9] While results of this method have been very spectacular in the reduction of the percentage of individuals showing thyroid enlargement, and the medical profession in the United States and in Europe is endorsing the procedure, it is open to several administrative objections: 1. It does not reach the children early enough in the rural districts. 2. It does not reach the pregnant mother. 3. It must depend on local interest and knowledge of the subject. 4. There must be constant propaganda in every community to keep the procedure in effect. 5. Persons overtreat themselves with these products. 6. The cost, while very small, will militate against the procedure because it is a specific cost and can be focused on for discussion. 7. Results cannot be made apparent except by resurvey: obviously, in many instances in which the scheme had once been tried out, it would be dropped from lack of knowledge as to the results obtained.

It has been proposed that iodin be given in municipal water supplies, and tried out at Rochester, N. Y., Sault Ste. Marie, Mich.,[10] and elsewhere. While this method is perfectly possible, it is open to the objection that only an infinitesimal amount of the water, less than 1 per cent., that is pumped by a municipality is used for drinking purposes, and only the municipal population can be reached.

The third method, which has been proposed and has not been tried out, is that of requiring by law that all salt sold for human and animal consumption in goitrous areas contain sufficient iodin so that the minimum requirements of 300 mg. a year would be normally taken in by every one in the area. When this method was first proposed in Michigan, two years ago, in a conference that was held with one of the officers of the Salt Manufacturers Association, the statement was made that it could be done provided the public was sufficiently well informed so that there would be no criticism of the product and provided that there was a good, sound, scientific background for the procedure. This method is open to fewer objections than any of the other methods, as it is a natural way of correcting an environmental deficiency of iodin content in the natural food supply, and will furnish no greater amount of iodin than is supplied naturally in communities which do not have a goiter problem owing to the fact that they have ample iodin in the soil and water. This procedure is in line with many other tendencies in the field of nutrition, away from overrefinement which eliminates much of the food value. Crude salt almost universally contains some iodids, and the statement has been variously made that refinement of the salt is one of the principal contributory causes of the increase of thyroid enlargements in the United States.

Supplying iodin deficiency through a household necessity would eliminate practically all administrative detail, would do away with the necessity of continued educational effort, would arouse individual action, and would solve the problem for both urban and rural districts.

8. Marine, David; and Williams, W. W.: The Relation of Iodin to the Structure of the Thyroid Gland, Arch. Int. Med. **1**: 345 (May) 1908. Marine, David; and Lenhart, C. H.: Further Observations on the Relation of Iodin to the Structure of the Thyroid Gland in the Sheep, Dog, Hog and Ox, ibid. **3**: 66 (Feb.) 1909; Relation of Iodin to the Structure of Human Thyroids, ibid. **4**: 440-493 (Nov.) 1909; Pathological Anatomy of Exophthalmic Goiter, ibid. **8**: 265 (Sept.) 1911. De Omervain, F.: The Thyroid and Iodin in Relation to the Prophylaxis of Goiter, Schweiz. Apoth. Ztg. **61**: 365, 1923.

9. Marine, David; and Kimball, O. P.: The Prevention of Simple Goiter, J. Lab. & Clin. Med. **3**: 40 (Oct.) 1917; The Prevention of Simple Goiter in Man, Arch. Int. Med. **22**: 41 (July) 1918; J. A. M. A. **73**: 1873 (Dec. 20) 1919; Arch. Int. Med. **25**: 661 (June) 1920; J. A. M. A. **77**: 1068 (Oct. 1) 1921. Kimball, O. P.: The Prevention of Simple Goiter in Man, Am. J. Pub. Health **13**: 81 (Feb.) 1923. Klinger, R.: Prophylaxis of Endemic Goiter, Wien. klin. Wchnschr. **35**: 35-37 (Jan. 13) 1922; abstr. J. A. M. A. **78**: 1175 (April 15) 1922.

10. Iodin Treatment of City Water at Sault Ste. Marie, Mich., Water Works **61**: 381 (Feb. 13) 1924.

Intravenous Use of Organ Extracts.—As a general principle, organ extracts of unknown composition (and this includes all of them, except thyroxin, epinephrin and, with some reservations, pituitary extract and insulin) must not be given intravenously or hypodermically when repeated administrations are called for. We must clearly recognize that intravenous or hypodermic therapy is always unphysiologic, and should be used only with pure products, and when the oral route yields no results, or too slow effects.—Carlson, A. J.: *Proc. Inst. Med. Chicago* **4**: 205, 1923.

OSTEOPOROSIS RELIEVED BY SYMPATHECTOMY

REPORT OF CASE

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Researches by Allison and Brooks [1] on the etiology of bone atrophy have led them to conclude that its character is the same regardless of the process, whether from poliomyelitis, traumatic nerve injuries, tuberculosis of bone, fracture, acute pyogenic osteomyelitis, simple fixation in plaster, or acquired and congenital deformities. In all of these conditions, lack of use is emphasized as the one causative factor in the production of bone atrophy. The same changes were observed regardless of the cause of disuse, and the amount of atrophy was directly proportional to the lack of use. The failure in growth in length of a bone in infantile paralysis is not due to any specific nerve influence destroyed by the disease, but the disuse alone results in a disturbance in growth as well as a thinning of the bone cortex and widening of the medullary canal.

That there may be another factor having an important influence in the production of bone atrophy is suggested by the case reported here, that of a disturbance in circulation. It is suggested that in those neurologic or inflammatory conditions in which bone atrophy appears, there is a disturbance of circulation manifested either by trophic or inflammatory changes; and, in cases of fractures or simple plaster fixation, the discontinuing of active motion favors a less active blood supply in the bones as well as in the soft parts.

REPORT OF CASE

C. C., a man aged 21 years, first exmained, Feb. 10, 1923, complained of pain in the left foot. Sept. 8, 1922, while working in an automobile factory, he had his left foot caught in a conveyer, and received a lacerated wound over the lateral border of the foot. A roentgenogram taken soon after the accident revealed no fracture. The wound healed promptly without infection, but swelling and pain were severe. Although five months had elapsed since his injury he had not been able to bear any weight on his foot, because even the slightest pressure caused extreme pain. The pain had been present at all times, and was particularly severe during the night.

The patient was well developed and fairly well nourished, and walked on crutches. He would not permit his foot to touch the floor. He was wearing a thick pad of cotton around his foot to keep it warm. Cold aggravated the symptoms. The whole foot was moderately swollen up to the ankle, was a dusky red, and felt cold. He stated that the swelling and reddened appearance were present even after a night's rest in bed. There was an irregular scar, 2 inches long, over the lateral border of the foot. The pulses in the dorsalis pedis and posterior tibial arteries were only faintly palpable. There was most marked tenderness throughout the foot, particularly over the dorsal surface of the tarsal and metatarsal bones. Gentle, passive motion in the ankle joint was painless, but motion in the tarsal joints was markedly limited and extremely painful. Roentgen-ray examination showed a very marked osteoporosis of all bones in the foot.

Arterial sympathectomy was advised in the hope of breaking up the vicious circle. The evident trophic disturbance, causing a diminished blood flow through the foot, was painful; pain prevented the patient from using the foot, and disuse led to osteoporosis. After twenty-four hours' rest in bed before operation, the appearance of the foot was unchanged.

February 27, the externa was stripped from the femoral artery in Hunter's canal. It was observed that during the manipulation the artery contracted to about one third of its former diameter, and the pulses in the foot disappeared. Three hours later it was observed that there was a full bounding pulse, and the foot was warm and visibly covered with moisture. Twenty-four hours after operation, the foot was moist, of normal color, and even warmer than the other one. One week after operation, the patient was able to walk about the ward with the assistance of a cane, and could bear considerable weight on the foot. He had had very little discomfort, and had slept well every night. Convalescence was uneventful, and on March 10 he was discharged from the hospital.

Two months after operation, he returned to his shop work. He had been walking about during the preceding week with no support, and had no discomfort. There was no swelling, the foot was warm and of normal color, and there was a good bounding pulse. He was last examined, October 5, and at no time has he complained of pain in the foot. He has been working every day. A roentgenogram taken that day showed a normal appearance of the bones in the foot.

COMMENT

This case is interesting because of the almost immediate cessation of pain that is so frequently observed in cases of osteoporosis. Before operation, pain was constant and most severe on attempted active and passive motion. Tenderness was marked. Twenty-four hours after operation, quite firm pressure could be exerted with only slight discomfort, and one week later the patient was able to bear considerable weight on the foot. Assuming that the pain on manipulation and tenderness to pressure were due to the osteoporosis, relief of the trophic disturbance alone must have been of great benefit. If the osteoporosis or bone atrophy were due entirely to lack of use, there would not have occurred such a striking change while the patient was still in bed. I do not mean to imply that the osteoporosis could have been relieved in so short a time, but it is most suggestive that, after all, trophic disturbances may play an important rôle in its causation.

821 Schofield Building.

1. Allison, Nathaniel, and Brooks, Barney: Bone Atrophy, Arch. Surg. 5: 499 (Nov.) 1922. Brooks: South. M. J. 15: 823 (Oct.) 1922.

GROWTH AS A FACTOR IN PROGNOSIS

"OUTGROWING" DISEASE *

L. EMMETT HOLT, M.D., LL.D. †
NEW YORK

We constantly hear the expression "he will probably grow out of it" used not only by the laity but by the medical profession with reference to all sorts of disorders of early life from such things as bed-wetting, chronic eczema or stammering, to more serious conditions. Underneath this idea of outgrowing disease, which is as old as medical history and is firmly embodied in our common thought, there is certainly an important truth, although too often the statement that the child will ultimately outgrow the condition is the last refuge of the unsuccessful physician, and the belief the last hope of the discouraged mother.

Most often it is functional disturbances that we speak of as outgrown; and outgrowing abnormal functional conditions, of which we see such a multitude in children, is natural and easy to understand. Early in life, structure is immature and functions are as yet only imperfectly developed; as the body grows and as function becomes better established, these abnormal manifes-

* Read before the Medical Society of the Peking Union Medical College, Dec. 18, 1923.
† Dr. Holt died, January 14.

tations pass away, provided a faulty environment or a defective nutrition, on which they so frequently depend, can be corrected.

But it is the effect of growth on organic conditions to which I wish especially to call attention. I do not think the importance of this has been generally appreciated. The extent to which the lesions resulting from serious organic disease in early life may disappear because of the changes that take place in the different organs and structures of the body, as a consequence of time and growth, has not been sufficiently taken into account in prognosis.

Growth really constitutes a reserve capacity for repair in the different organs, which is of great value in effacing the effects of disease. The result of this is, of course, seen in its most marked degree during the period when growth is most rapid.

The body possesses a wonderful capacity for growth, the stimulus to which even yet we very imperfectly understand. We know that growth in size may take place on insufficient food and even while there is loss of weight. Normally the body doubles in weight and practically in size in the first six months of life; by the end of the third year it has doubled again; at about 10 years it has doubled for a third time; and usually by the time 16 or 17 years is reached it has doubled in weight for the fourth time. The adult body is thus approximately sixteen times the size of the body at birth, eight times that of a child aged 6 months, four times that of one aged 3 years, and twice that of a child aged 10 years. While we cannot, of course, say definitely that through growth the possibilities of repair are twice as great in a child aged 10 and four times as great in a child aged 3 years as they are in an adult, yet something approaching this does exist. Not all the organs of the body grow at the same rate; some, as the brain and liver, reach mature size earlier than do other organs, but most of the organs increase in size as much as does the body as a whole.

In adult life the effects of disease or injury are by the ordinary processes of repair removed only to a degree. This is often imperfect, and it becomes less and less complete as age advances and a general tendency to degenerative changes begins to manifest itself in all the organs of the body. In the young, provided the nutrition of the body is normally maintained, we can count, under the most favorable conditions, not only on the normal processes of repair but also on this additional vital factor of growth. Great and almost unpredictable changes are possible during the period of most active growth in almost all the organs and structures of the body; this is something that may be reckoned with by both the physician and the surgeon.

The popular belief that the entire body (excepting possibly the skeleton) changes once in seven years may not be strictly true, but we know that the renewal and repair of body cells are going on continually during life, most actively while the body is increasing most rapidly in size. Not only is the repair of ordinary wear and tear more perfect during early life, but additions are constantly being made to the cells and fibers that make up the organs and various tissues of the body. I have long been impressed with the important practical bearing of these facts, but I do not believe that they are generally taken into account sufficiently in the prognosis and treatment of disease and deformities of early life.

In an organ such as the brain, with highly differentiated functions in its different parts, the effects of disease and injury are, of course, not susceptible of such repair as may readily take place in homogeneous organs, such as the kidney, liver or lungs. The extent to which repair from injury can take place in the last mentioned organs is quite familiar to surgeons. Disease, however, is seldom so localized as is traumatism, and may affect the entire organ or only certain of its anatomic elements; i. e., the parenchyma or the interstitial substance. Were it not for the changes that are taking place in these organs in the process of growth, nothing so extensive as the repair that follows disease would be possible. It is evident that in the brain, where destructive lesions of even a small part may interfere permanently with some special function, this is not possible; hence the bad prognosis, which is true with all organic cerebral lesions. But in the lungs, the heart, the liver, the kidney and even the hollow viscera such as the stomach and the intestine, growth creates possibilities of renewal and recovery in the child which can hardly be dreamed of in adult organs.

In one particular, the child with his growing organs is at a great disadvantage as compared with the adult. The very immaturity of these structures renders them more easily overcome by the injury done by acute disease. However, provided the child is able to withstand the dangers belonging to the acute stage of the disease, his capacity for overcoming serious lesions is very great.

Again, all healthy organs in their growth tend to grow symmetrically. This is true of such organs as the brain and the lungs, even though encased in a bony framework. As growth takes place, the skull conforms to the shape of the brain and the chest to that of the lungs, not the reverse, as is so often thought to be the case.

CLINICAL EVIDENCE

Turning now from these general statements to particulars in illustration, I am quite well aware of the fact that, in most of the conditions that will be cited, the evidence is clinical and not supported by necropsy findings; but this is necessarily so, since we are considering the organs of children who recover, not those who die from disease. In most of the conditions mentioned, however, the clinical evidence of recovery seems to me to be pretty conclusive.

I have said that the growth of healthy organs is symmetrical and that the pressure they exert on the bony cavities in which they are contained is considerable. There are a few conditions in the skull like the early ossification of the os tribasilaris in chrondrodystrophy, which restricts the growth of the brain at the base, and causes a permanent depression at the base of the nose and an unnatural bulging of the forehead. Most of the irregularities in the shape of the head that exist at birth soon disappear. A not uncommon one is a peculiar obliquity of the skull apparently due to intra-uterine position. In this condition there is flattening of the frontal region on one side and of the parieto-occipital on the other, so that one oblique diameter of the head may be an inch or more greater than the other. The condition often causes much concern, lest it be permanent or that it may indicate some abnormality of the brain, or may interfere with its normal growth. But I have never seen one of these cases in which the head, at the end of two or three years, had not become symmetrical and every trace of the deformity had disappeared.

Again, the early closure of the sutures and fontanels in microcephalus is a result of the slow growth of the brain, not its cause. In the light of these facts, the treatment of this condition by an operation in which a

large longitudinal opening in the skull is made is as illogical in theory as it was found to be futile in practice.

Great deformities of the thorax may disappear entirely with the normal growth of the lungs. One who is unfamiliar with the frequency and marked degree of deformities of the chest, seen in children of from 2 to 4 years as a result of rickets, can hardly appreciate this point.

Many years ago I had under my care a little boy, aged 1 year, with marked rickets; his chest measured at that time nearly 2 inches (5 cm.) less than his head; even at 5½ years his chest measure was only the same as his head. There were marked lateral depressions and a prominent sternum causing a deformity of a most pronounced type. Fifteen years later I received a letter from his mother recalling to my mind this early condition and saying that I might be interested in knowing that the boy had passed his examination for the navy, with the statement by his examiner that his chest development was one of the best that had been seen.

Some of my assistants who examined many men for the army or navy were most surprised at the great infrequency of thoracic deformities, of which they were accustomed to see many in practice among young children. Thoracic deformities of a severe type are obviously a serious handicap in infancy and early childhood, increasing, as they do, the susceptibility to and the dangers from pulmonary disease; but once this period has passed, they appear to have little or no permanent effect on the health or growth of the individual; and they slowly diminish, the chest walls being gradually pushed out with the growth of the lungs until they disappear entirely. Such satisfactory results, of course, are favored by opportunities for vigorous exercise during the period of active growth—from 8 to 16 years—such as are furnished by country life. Hence the importance of the country school at this age. But even among the poor, and in the city where opportunities for outdoor exercise are fewer, the efforts now being made in the public schools in physical education are beginning to show results.

The disappearance of even considerable deformities of the bones of the extremities (knock-knees and bow legs) by growth of the long bones is too well known to need comment. As bones grow, the tendency is to grow straight, not to grow crooked, unless there are mechanical conditions present that prevent such growth. One who has not watched it is continually surprised at the degree of curvature of the legs that may disappear spontaneously in the course of a few years of healthy growth.

It is, however, of visceral conditions that I wish especially to speak. In the brain, as has already been said, it is, of course, impossible for parts injured by disease to recover perfectly, or for other parts to take on their functions to any important degree; so that from lesions of the brain resulting from acute processes, recovery is necessarily limited and partial. However, this is not true to the same degree of other organs.

Acute vesicular emphysema is regularly found in infants and young children dying after whooping cough, any form of laryngeal obstruction, or prolonged bronchopneumonia. In whooping cough that has lasted several weeks, this emphysema is often very great. But in children who die years afterward from other conditions, seldom is any trace of this seen at necropsy. If children are only strong enough to withstand the dangers incident to the active stages of disease, the completeness of recovery after a prolonged attack of bronchopneumonia, an empyema, and even tuberculous processes of the lungs, is surprising. After empyema, in particular, it is often impossible after the lapse of two or three years to tell by a physical examination which was the affected side, except by the scar of incision.

Even after severe and prolonged inflammations of the kidneys, growth comes to our aid in repairing the damage done by such processes, and makes possible recovery from conditions which, in adult life, would almost certainly be followed by chronic disease of a serious character.

Several years ago, I saw a little girl just under 3 years of age, who for six weeks had been suffering from a severe attack of nephritis following measles. For more than a month there had been general anasarca. I have never seen greater edema; the body was simply water-logged; the eyes were virtually swollen shut; there was considerable fluid in the peritoneum and a moderate amount in both pleural cavities; the urine contained a large amount of albumin and many casts, for weeks the daily quantity being seldom more than 3 ounces a day, often less than 1 ounce being passed. As the edema was so great and did not yield to other treatment employed, small incisions were made and tubes inserted in the subcutaneous tissues of the legs. This resulted in draining away a large amount of fluid, so that in eight days there was a loss of nearly 4 pounds (1.8 kg.) in weight. When the tubes were removed the first time, she gained for a short while at the rate of 1 pound (0.5 kg.) a day; but the dropsy never became quite so great as it was before. The usual treatment for the condition was employed with but little apparent effect. Finally, after lasting for five months continuously, much to our surprise the dropsy slowly disappeared. The highest weight with the dropsy present was 40 pounds (18.1 kg.); when it disappeared, the weight was but 25 pounds (11.3 kg.).

From this time, convalescence was slow but continuous. The urine continued to be scanty for several months, but the amount of albumin fell after two or three months to a mere trace. I was able to follow the case for three years after this attack, during which time the child remained entirely free from all symptoms of disease. For about a year the urine, which was examined at frequent intervals, showed a bare trace of albumin and often none at all; the other abnormal elements disappeared. At 6 years she had grown to be a strong, healthy-looking girl of average height and weight for her age. I had then a twenty-four hour specimen of urine examined and it was found entirely normal.

Results not dissimilar to this are frequently seen after acute nephritis following scarlet fever.

The heart seems the most unlikely organ in which to expect recovery from any well marked organic lesion. That leaking valves can undergo such changes by repair as to be no longer recognizable, after being in existence for years, will be believed only by one who has seen such cases.

Eighteen years ago I had under observation a boy, aged 6 years, who had first an acute tonsillitis, and then articular rheumatism with acute endocarditis, prolonged fever, etc. At the height of his attack, after he had been ill two and a half months, the pulse ranged from 120 to 130; there was marked dyspnea; he could not rest at all lying on the right side; there was cardiac dulness 1 inch to the right of the sternum; the apex beat was in the mammary line; there was heaving pulsation; there was a double murmur at the apex; there was a loud systolic murmur over the aortic valve; the boy was extremely pale; he was very thin; the general condition was serious; the outlook was very unpromising. The severe symptoms with some fever lasted more than three months. The boy was kept in bed with this attack fully six months, his general and cardiac symptoms slowly improving. Not long after this he moved from New York and I lost sight of him.

Recently I received his business card, and I wrote asking him to call and allow me to examine his heart. He did so

and related his history after I last saw him. Three years after the attack in which I attended him, he had another attack of rheumatism with a return of his cardiac symptoms, and he was kept in bed for several months. Three years after this, when he was about 12 years old, he had a mild attack of scarlet fever, which was followed by a severe rheumatic attack, and he was kept in bed this time fully six months. Since that time he stated that he had not been sick in bed as much as two days at a time. Two years after his last attack, when he was 14 years old, he was allowed to play golf; at 15 he began tennis, contrary to orders, and at first had so much dyspnea that he was obliged to lie down after a single game; but he persisted, and in a year he could play without much discomfort, while later he played like any other boy. He recalls one day in which he played eleven sets of tennis singles. Now he often plays seventy-two holes of golf in a day. He said that he had not had a single cardiac symptom for more than ten years.

I found him as fine a physical specimen as one would wish to see: his height was 6 feet 1 inch (185 cm.); his weight, 168 pounds (76 kg.); chest, 36 inches (91 cm.); his heart was not enlarged; the apex beat was three-fourths inch inside the nipple line; the pulse was perfectly regular, and not a trace of a murmur or any abnormality of the heart sounds could be detected anywhere after a most careful examination, both standing and recumbent, when quiet and after active exercise. He said that he had passed the army examination, but subsequently had been rejected, on account of his history.

On relating the history of this boy to two of my medical friends, each matched it with one that had come under his own observation:

The late Dr. John D. Thacher told of a child of one of his friends, who had been an almost helpless invalid for years with a severe cardiac lesion. When the boy was 8 years of age, the family physician, one of the best practitioners in New York, told the parents that really nothing could be done for the boy and that any improvement in his condition was not to be looked for. The mother said, "If you can do nothing more, I am going to try." The boy was put in charge of a masseur, and systematic and gradually increasing exercises were given. Slowly he began to improve, and after a little more than a year he was able to attend school. Later he went to boarding school and then to college, where he made a reputation as a crack baseball player. During the war, he passed an examination for the army and held a commission as major. He has settled in New York as a lawyer, where he has a large and flourishing practice and is regarded as husky.

The second case came under the observation of Dr. L. E. La Fetra. It was that of a boy with congenital cardiac disease with the usual symptoms of a serious lesion: there was marked constant cyanosis, polycythemia, a correspondingly high hemoglobin, and a loud systolic murmur. An absolutely bad prognosis was given. These parents were told that no improvement could be looked for, and that in all probability the child would not live to grow up. Contrary to all expectation, the symptoms, including the cyanosis, gradually improved and ultimately disappeared. This boy is now a grown man; he is and has been to all appearances a well man for years. During the war, he passed the rigid examination for the aviation corps.

While the necessity for prolonged rest during and for some time after acute cardiac attacks in early life cannot be too strongly insisted on, these three cases cited raise the point whether we have not in our management of cardiac cases in children, which have reached the chronic stage, been too fearful of the effects of exercise. When carefully graduated and supervised, great and unlooked for improvement may follow.

Twenty years ago I saw several times in consultation another patient with heart disease in whose case the outcome was as unexpected as it is interesting. A girl, aged 8 years, with a severe endopericarditis complicated by an extensive pneumonia, presented no articular symptoms though the family was strongly rheumatic. There was very marked pericardial friction, a loud double murmur at the apex, and a greatly enlarged heart, the apex beat being three-fourths inch below and 1 inch to the left of the mammary line. The acute febrile symptoms lasted a full month. During the first weeks the child was so desperately ill that recovery seemed most unlikely. She was kept in bed for nearly six months after the acute symptoms subsided, and was then watched.

Examination a year later showed the heart to be still considerably enlarged, and a marked mitral systolic murmur present; the apex beat was still outside the nipple line. Two years after the attack, examination showed the same murmur at the apex, though it could no longer be heard behind. The apex beat was in the mammary line. The patient was then able to exercise freely. Three years after the attack the murmur could no longer be heard, though slight enlargement of the heart was still present. During one mild attack of rheumatism when she was 14, and six years after the first illness, for a short time slight pericardial friction sounds could be distinguished at the base of the heart, and a faint endocardial murmur heard at the apex, but they both disappeared completely in a short time and she was kept in bed only three weeks on this occasion. This was her last attack. I recently received a letter from the father in which he stated that, though never a robust girl, she had had no further trouble with the heart; she married and had one child.

I do not suppose that in any of these patients there was complete anatomic recovery, but clinically this girl did recover from one of the most severe attacks of endopericarditis with pneumonia that I have ever seen.

It is perhaps in pathologic conditions affecting the hollow viscera of the abdomen that the possibilities of recovery with growth are seen to the most striking degree. How common are the large abdomens of early childhood, yet how rarely is a similar condition seen in adolescence or even in adult life except from fat accumulation. There are many conditions which predispose to dilatation of the stomach and the intestines in small children, which do not obtain in those who are older. Great production of gas from disordered digestion, feeble muscular tone due to age and aggravated by rickets, lack of normal support from weakened abdominal muscles, and chronic constipation, which is a result of these important factors and again a cause that intensifies them all, together furnish the conditions most favorable to dilatation, deformity and sacculation, particularly of the large intestine and to a less degree of the stomach and small intestine.

There are also some predisposing anatomic conditions of considerable importance in early life. Among these the greater relative length of the large intestine to the body length in the child is, perhaps, the most significant. While the length of the colon varies somewhat in different persons, the average in adults usually given by anatomists is from 80 to 85 per cent. of the body length. In the infant it varies greatly, and according to my own observations it is often from 110 to 120 per cent. of the body length, nearly half of this being in the sigmoid flexure. This great length and dilatation of the redundant sigmoid are the most striking features of the pathologic conditions of the colon seen at this age. The large abdomen of rickets and chronic intestinal indigestion is a very familiar clinical picture, but the roentgen ray has revealed in these cases degrees of displacement, deformities, sacculations and dilatation of the intestine and stomach hitherto unsuspected. It is not uncommon that the colon, which normally would have a diameter of 1½ inches (3.7 cm.), is shown to have a diameter of 4 or 5 inches (from 10 to 12.7 cm.). This condition is often confounded with congenital hypertrophy and dilatation of the colon, commonly known as Hirschsprung's disease.

To one whose ideas of prognosis and treatment are based on similar adult conditions, the improvement in them that may take place in the child is almost incredible. Provided proper treatment for these patients can be secured and the nutrition of the child maintained at its best, there seems to be almost no limit to which recovery may take place from even the very marked conditions such as have been mentioned.

In addition to the general changes in the walls of the intestines that may take place as a result of growth, the increased size of the abdominal cavity in itself favors the straightening out of the sacculations and redundancies of the large intestine, fixed as it is below and above. The temptation to resort to surgery in some of these cases is sometimes great, but would hardly be seriously considered by one who was familiar with what can take place without it.

I could cite many cases illustrating the conditions just mentioned, but a single one will suffice:

Some years ago, I saw in a girl, aged 3 years, one of these typical cases of what I regarded as chronic intestinal indigestion and constipation, with a very large abdomen. The symptoms were of many months' standing. When I saw the child, the parents were passing through New York to spend the winter in the south of France, hoping by change of climate to improve a condition that seemed to be getting steadily worse at their home in Connecticut.

The child's condition did not mend but rather grew worse; she lost weight and appetite; the constipation became more marked, and the abdomen grew larger than ever. She was then taken to Paris and saw several consultants, one in general medicine and another a specialist on gastro-intestinal diseases. The roentgenograms showed at this time an enormously enlarged colon, especially the sigmoid; it was fully 5 inches (12.7 cm.) in diameter. The diagnosis of Hirschsprung's disease was unanimously concurred in by the two consultants and a well known French surgeon who was added to the group. Removal of the colon was proposed and agreed to by all three consultants; the time was even set for the operation. My opinion as to the operation was requested by cable. My protest was so strong that, supplemented by the advice of Dr. Osler, to whom the history and the roentgenograms were shown, and by the opinion of Dr. Marfan, the Paris pediatrician, who was now called, operation was postponed, and finally abandoned altogether.

The child was then put under the care of Dr. Combe at Lausanne. With careful feeding, high oil enemas and a liberal use of agar, the symptoms rapidly improved, and in six weeks the little girl, who had been barely able to sit up, was walking about and had gained 8 pounds (3.6 kg.). Slow but steady improvement continued, and in less than two years all symptoms, even including the distended abdomen, had practically disappeared.

Seven years after my first observations, I saw this girl again and had an opportunity to make a careful examination of the abdomen. She was a very tall, rather slender child of 10, in the best of health, with an unusually small abdomen. Not a trace of distention existed or had been present for more than four years, though she still required agar at times on account of a tendency to constipation. I was shown a photograph from a roentgenogram made in Paris at the time when operation was proposed. The report of this case has been widely circulated as an instance of recovery from Hirschsprung's disease without operation. It is evident from the history of no symptoms until about the middle of the third year, and from the result, that this was not Hirschsprung's disease, but, as the roentgenogram showed, chiefly a dilated rectum, and a redundant and greatly dilated sigmoid flexure.

To secure the maximum benefit that is furnished by growth, proper treatment must obviously also be given; exercises to develop the lungs in cases of thoracic deformity; prolonged rest after *acute* attacks in cardiac disease; intelligent feeding, abdominal support, and relief of constipation in dilatation of the colon; but, most important of all, as has been repeated in this paper, the closest attention given to the nutrition of the patient throughout the entire period of growth.

CONCLUSION

I am impressed with the fact that there are certain phases of medicine, opportunities for the observation of which are furnished only by private practice. It is greatly to be regretted that those who are able to follow the same patients over long periods of time, and so are able to see the ultimate results of acute disease, seldom keep records of their observations, or, if they do, seldom publish them. Such contributions would fill a large gap in medical literature, particularly in the matter of prognosis.

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REPAIR OF DURAL AND BRAIN DEFECTS BY FREE FAT AND FASCIAL TRANSPLANTS *

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The repair of defects of the dura mater following trauma or the extirpation of brain tumors is sometimes a difficult surgical problem. One of the first questions to be decided is what material will be used for the plastic operation. The dura is a strong, fibrous membrane almost avascular, lined by a layer of cells termed endothelial.[1] It lies in contact with the leptomeninges save where it is separated by cerebrospinal fluid. In selecting substitutes for the dura, in repair of its defect, we must find a tissue that will fulfil several requirements. It must be strong and unyielding to resist intracranial pressure. It must be capable of forming a tight union with the surrounding intact dura. It must, if possible, be of such a nature as not to coalesce with the brain or leptomeninges. If autoplastic material is used, its viability must be assured. In line with present surgical teaching and procedure, it is agreed that autoplastic transplants must be the first choice in dural plastic operations. It has been suggested by Kleinschmidt [2] that blood vessel wall, because of its anatomic similarity, is the most logical substitute for the dura mater. It will appear, however, that the amount of this tissue available for autoplastic transplants is too meager to merit consideration. Rehn,[3] Bode,[4] Smirnoff,[5] von Saar,[6] Kolaczek,[7] Körte,[8] Morris,[9] Kerr,[10] Skillern [11] and

* From the surgical and pathologic services of St. Luke's Hospital.
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1. Mallory, F. B.: The Type Cell of the So-Called Dural Endothelioma, J. M. Res. **41**: 349-364 (March) 1920.
2. Kleinschmidt, O.: Die freie autoplastische Fascientransplantation, Ergebn. d. Chir. u. Orth. **8**: 205-273, 1914.
3. Rehn.: Versuche über Duraersatz, Verhandl. Deutsch. Gesellsch. f. Chir. **1**: 99-102, 1912.
4. Bode, F.: Zur Verhütung des posttraumatischen Narbenzuges an der Gehirnoberfläche nach Operationen, Zentralbl. f. Chir. **48**: 77-79, 1921.
5. Smirnoff, A.: Ueber den plastischen Verschuss der Duradefekte des Gehirns, Inaug. Diss., St. Petersburg, 1913; Zentralbl. f. d. ges. Chir. **2**: 357-359, 1913.
6. Von Saar, G.: Ueber Duraplastik, Beitr. z. klin. Chir. **69**: 740-794, 1910.
7. Kolaczek, H.: Ueber freie Transplantation von Peritoneum, Beitr. z. klin. Chir. **68**: 155-240, 1912.
8. Körte, quoted by Marshall, V. F.: The Transplantation of Fat and Fascia Flaps in Surgery, Am. J. Surg. **30**: 224-229 (July) 1916.
9. Morris, R.: Omental Graft in Brain Surgery, West. M. Times **39**: 598-399, 1919-1920.
10. Kerr, H. H.: The Late Treatment of Gunshot Wounds of the Head, Surg. Gynec. & Obst. **30**: 550-554 (June) 1920.
11. Skillern, P. G.: A Fat-Fascia Bone Transplant for Defect of Skull, Ann. Surg. **68**: 544-548, 1918.

many others have suggested and tried many different tissues for plastic operations on the dura. Among those advocated are skin, periosteum, omentum, fat, foreign bodies, osteoperiosteal grafts, fascia and many combinations of these. Brünung [12] devised a method of splitting the intact dura and using pieces thus obtained in closing defects. Obviously, the last method is out of the question in large plastic operations, although this observer reports favorably on his method in cases in which he has used it.

Bode [4] employed fat and fascia in plastic operations on the dura, but abandoned these because, according, to his experience, adhesions soon formed between the underlying brain and the transplant. To obviate this, he employed a skin transplant. He describes the use of grafts of skin, turning the epithelial side toward the brain, and the fat side out. To complete the union between the grafts and the dura, he employed grafts of periosteum taken from the tibia. This method will not appeal to the average surgeon, first, because of the difficulty in sterilizing the skin graft, and, secondly, because the skin is too elastic to afford resistance to any pressure from within the skull.

The use of peritoneum in dural repair has been investigated by von Saar,[6] Kolaczek,[7] Smirnoff [5] and many others. The chief complaint made by these who have studied its use is that it quickly adheres to the underlying brain. Kolazcek, who has made the most elaborate study concerning the use of peritoneum in closing defects in the dura and brain, concludes that it will in any case adhere to the brain, and that it not infrequently is absorbed. He was unable to decide whether or not the presence or absence of endothelial cells influenced the fate of the graft or prevented adhesions forming in case the graft survived.

Homoplastic grafts of peritoneum, according to Smirnoff, are more uncertain as to life; and, when they do persist, they always firmly attach themselves to the underlying brain. Von Saar, however, concludes that, if peritoneum is used at all, homoplastic grafts should be employed because they are more readily obtained. Morris [9] has employed omentum in dural repair. In his report he asserts that he used omentum because its endothelial covered surfaces would not adhere to the brain or meninges. He does not state in his report the ultimate termination of omental grafts, and makes no reference to histologic studies made.

Autoplastic fat in the repair of dural defect repairs was first advocated by Rehn,[3] and later by Smirnoff,[5] and others. Rehn has reported many good results, especially in cases of traumatic epilepsy, when there has been destruction of the dura and marked changes of the brain surface. He occasionally found adhesions between the transplant and the adjacent brain surface, and he states this fact in his report of his first case. He was, however, satisfied, from a clinical standpoint, and considers that the result obtained from this type of repair is quite satisfactory. Rehn mentions that, if there is no gross change in the brain surfaces, fascia is the material of first choice in plastic operations on the dura. Smirnoff discourages the use of fat alone as a transplant.

Finsterer,[13] in his study of plastic operations on the dura in jacksonian epilepsy, emphasizes the fact that if autoplastic transplants were used, adhesions were likely to form between the substituted tissue and the brain or its coverings, and advocated heteroplastic materials, with which adhesions were not so likely to occur. In large defects he has employed celluloid. The formation of adhesions between the repaired dura and the adjacent brain or leptomeninges is considered by some the cause of the return of symptoms in jacksonian epilepsy in cases that have been apparently relieved by operation.

Skillern [11] reports a successful clinical case of repair of a defect of the skull and dura with a combined fat-fascia and bone graft from the tibia. The fat surface of the graft was placed in apposition with the brain. From the bone graft the medullary tissue and endosteum were removed. This difficulty in securing an adequate sized graft from the tibia precludes the use of this bone excepting when the defect is small and so placed that the convexity of the skull will make it impossible to secure the transplant properly. Villandre [14] used osteoperiosteal grafts in thirty-two cases, with good results in every one.

Kerr,[10] in a report of work done at the Walter Reed Hospital, used osteoperiosteal transplants secured from the adjacent healthy skull. This work was done under local anesthesia, and the results are reported as being excellent. It may be remarked that the method described by Kerr was the one first advocated by Koenig about thirty-five years ago.

A large number of operators, including Kischner,[15] Kleinschmidt,[2] von Saar,[6] Smirnoff,[5] Denk,[16] von Ebert and Hill,[17] and Bárány [18] have used autoplastic fascia in dural repairs. Almost all report good results and agree that fascia is the most desirable for dural plastic operations. Some make the exception of those cases in which the defect is very large or there is infection. At present, no surgeon would operate in the presence of active infection. This objection found in the size of the defect is not well taken. It would seem that no other tissue could be supplied to cover a large defect as readily as the fascia lata. Bárány [19] urged the immediate repair of dural defects in war wounds after splinters of bone and débris have been removed. This opinion of Bárány concerning the immediate repair of dural defects is not generally held by surgeons who have had experience in the treatment of war wounds. The proper course to pursue, in cases of this nature, would be, first, to secure a clean wound and at some time later close the defect by fascia transplant. It has been pointed out by Kleinschmidt that the graft must always be larger than the defect. In our cases the facial transplant was always made one-third larger than the defect to be closed. It is not always necessary to secure the graft by suturing. In some cases in which the cut edge of the dura is flush with the margins of the cranial defect, it is difficult, without removing an additional portion of the skull, to suture the margins of the graft to the cut edge of the dura. In such cases all that is necessary is to have the graft large enough to overlap the dura for a distance of one-half or three-fourths inch.

Another advantage of fascia is that it is strongly viable, lives under unfavorable conditions, and, although the blood supply is poor, is not easily infected; further,

12. Brünung, A.: Beitrage zur Duraplastik, Deutsch. Ztschr. f. Chir. **113**: 412-417, 1911-1912.
13. Finsterer, H.: Die Bedeutung der Duraplastik bei der Behandlung der Epilepsie nach geheilten Schädelschüssen, Deutsch. Ztschr. f. Chir. **146**: 145-207, 1918.
14. Villandre, C., quoted by Skillern (Footnote 11).
15. Kischner, M.: Zur frage des platischen Ersatzes der Dura mater, Arch. f. klin. Chir. **91**: 541-542, 1910.
16. Denk, W.: Diskussion zu dem Vortrag von Rehn über Duraplastik, Deutsch. Gesellsch. f. Chir. **1**: 112, 1912.
17. Von Ebert, E., and Hill, W.: Free Transplantation of Fascia, Surg. Gynec. & Obst. **18**: 318-321, 1914.
18. Bárány, R.: Methode des primären kompleten Verschusses der Hirnwunde, München. med. Wchnschr. **63**: 1164; Ueber die Primärsuter der Hirnverletzungen, Zentralbl. f. Chir. **46**: 926, 1919; Die offene und geschlossene Behandlung der Schussverletzungen des Gehirns, Beitr. z. klin. Chir. **105**: 397-417, 1917.
19. Bárány (Footnote 18, first reference).

it is anatomically similar to the dura, and it is possible to make close union to the dural margin; lastly, it is always available and easily secured. In a review of the literature, we found that nearly every operator reported good clinical results in the use of fat-fascia transplants in the closure of dural defects.

REPORT OF CASES

CASE 1.—*Sarcoma of skull and dura mater. Dural repair by free fascial and fat transplant. Closure of the cranial defect by osteoperiosteal transplant.*

History.—H. A., a man, aged 22, American, single, admitted to St. Luke's Hospital, Sept. 20, 1914, had an irregular tumor mass of hard consistency, about the size of an English walnut, on the right temporal bone near the temporoparietal angle. His parents stated that when he was 12 years of age he received an injury, since which time this tumor had been apparent. During the last six months, it had steadily grown in size and had become painful to touch. Three months before entrance, a surgeon curetted away a portion of the mass, which appeared to be soft and degenerated. The diagnosis at this time was necrosis. Following the curettage, the mass rapidly enlarged and had been growing steadily since. The patient had had only the usual diseases of childhood. There was no history of venereal diseases. The family history was negative. The patient's habits were good. Physical examination was negative except for the tumor, which was covered by a scar, which was adherent, as was also the surrounding scalp. The tumor was immobile and painful to touch. Percussion caused a shooting pain over the vortex of the skull and behind the right ear.

Operations and Result.—September 22, the usual preliminary preparation of the scalp was made, with iodin for disinfection, immediately preceding the operation. A curved incision, 4½ inches long, was made, with the convexity above, the middle of which corresponded with the most prominent portion of the tumor mass. A flap of scalp and scar tissue was reflected, exposing the tumor, which seemed to infiltrate the surrounding bone. The tumor mass, together with about three-fourths inch of the skull beyond the margin of the tumor, was excised. This was accomplished by first drilling through the skull at intervals of about three-fourths inch. After the mass had been completely surrounded with these drill holes, the skull between them was cut through by means of a Gigli saw. When loosened, the section was found to be firmly adherent to the dura mater. An incision was then made through the dura corresponding to the excised portion of the skull. The underlying dura and bone were then elevated and removed. The brain underneath was found to be depressed over a corresponding area, the deepest part of the depression being about three-fourths inch. The opening in the skull, after the tumor had been removed, was approximately 2¾ by 3¼ inches, and hexagonal in contour. A flap of fascia lata with its underlying fat, about one-third larger than the dural defect, was removed from the thigh. The margins of this flap were carefully sutured with fine chromic catgut to the margin of the dura, the fat side being turned toward the brain. The scar tissue and a portion of the scalp covering the tumor were excised. The scalp flap was sutured in place; the defect resulting from the excision of the scar tissue and the scalp overlying the tumor was repaired by a plastic operation. The wound healed by primary union except at a point where the excision of the scar tissue had been made. This healed by granulation. The patient was discharged, October 15.

The section of the tumor and dura removed was examined by Dr. LeCount, who reported that the tumor was an osteosarcoma, with extension to the dura mater.

Jan. 25, 1915, the patient returned to the hospital for the purpose of having a bone defect in the skull repaired. January 26, an incision corresponding to the original scalp incision was made, and a flap of scalp adherent to the transplant was dissected loose. The dura was incised to permit examination of the cerebral cortex. The dural transplant was everywhere free from adhesions to the leptomeninges. The surface of the brain was normal in all respects. The dural transplant was smooth, and could be distinguished from the normal dura only by most careful examination. A curved incision was made, exposing the body of the left scapula. The bone was freed from its overlying muscles. An incision by means of an electrical saw was carried around close to the border of the scapula, excising the center of the bone. This part of the bone was then detached from the periosteum of the under surface, and fashioned by means of a saw to fit the defect in the skull. Small drill holes were placed about one-half inch apart around the margin of this graft. The edges of the skull defect were freshened by chiseling away the outer table for about one-fourth inch around the margin of the defect, thus forming a shoulder on which the graft was placed. Drill holes corresponding to those in the graft were made through the inner table of the skull. Through these were passed chromicized catgut sutures, by which the graft was fastened in place. The scalp flap was then replaced, and the wound sutured and dressed in the usual way. Healing was by primary union. The patient was discharged, February 14.

Subsequent Course.—Following the operation, the patient's condition greatly improved. The defect in the skull had caused him considerable distress. He was sensitive because of the deformity, and kept to himself, seldom going out with his friends. A visible pulsation of the brain was a constant reminder of his condition. He had grown morbid until his mental condition bordered on melancholia. After the closure of the bone defect he rapidly improved, and within a few months had practically returned to his normal condition. The excision of the scapula caused very little disturbance. By the time he left the hospital, he was freely using his arm.

In September, 1915, he returned to the hospital, because of a small painful nodule which had appeared in the anterior and lower angle of the scar. Excision of this nodule under local anesthesia showed it to be a small neuroma. No recurrence of the sarcoma was found. At this time the bone graft was firmly attached to the margin of the defect. This patient subsequently served as an officer in the U. S. Army, and saw active service in France. In 1918, I saw him while he was convalescing from a wound received in action. The skull defect was completely closed, and he suffered from no symptoms referable to his former condition. He is at present a commissioned officer in the regular army.

CASE 2.—*Meningeal cyst following compound comminuted skull fracture. Excision of the cyst membrane. Free fascia and fat transplant used to close the dural defect.*

History.—R. F., a youth, aged 16 years, admitted to the hospital, Jan. 24, 1916, had epilepsy, generalized epileptiform convulsive attacks coming on at intervals of a few hours. The attacks had grown in frequency and intensity during the last six months. There was a pulsating tumor of the left temporoparietal region the size of a hen's egg. The tumor was soft and compressible, and pulsated. Compression caused a convulsive attack, beginning in the right arm and becoming general, causing loss of consciousness and frothing at the mouth. These attacks began about six months before admission.

The patient was kicked by a horse four years before. The attending physician stated that he sustained a compound comminuted fracture of the skull, with laceration of the dura and rupture of the middle meningeal artery, with severe hemorrhage. Following the injury, the patient was unconscious for about forty-eight hours. The loose fragments of bone were removed, the lacerated dura was excised, and the hemorrhage, which was excessive, was finally controlled by packing gauze between the brain and the margins of the skull. The wound finally healed. No effort was made at this time to replace the bone fragments or to repair the defect in the dura. The patient gradually recovered without paralysis or paresis. Three years after, there appeared a pulsating tumor at the site of the injury. About this time the patient began to have what his parents considered "fainting spells." These were characterized by a momentary loss of consciousness without falling or convulsions. Six months prior to entrance, the convulsive attacks became as described above, and increased in frequency and intensity. These occurred several times a day and were of great severity.

The boy was undersized. Physical examination was negative except for the tumor, which was situated just above the left ear. On compression of the tumor, a defect in the skull about 1¾ inches from before backward and 1½ inches in width could be outlined.

Operation.—January 27, a curved incision was so made that the flap reflected included the scar tissue over the tumor. When the scalp was reflected, a small tumor mass

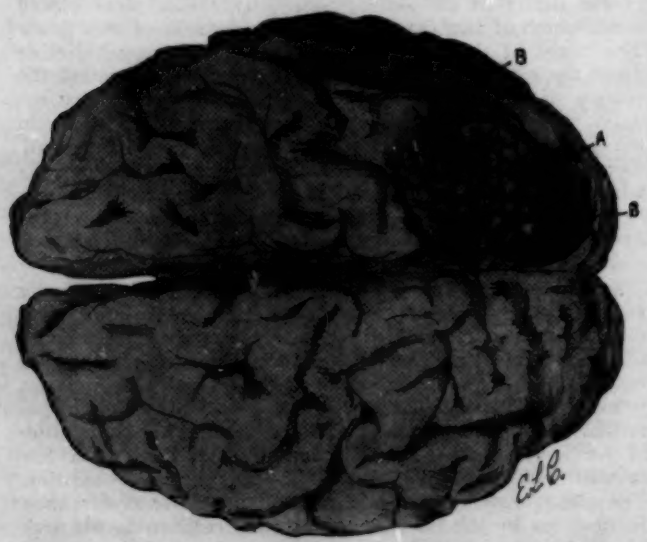

Fig. 1.—This and the accompanying illustrations are diagrammatic sketches of the brain in Case 3: Superior surface: *A*, fat and fascia transplant of cerebrum; *B*, *B*, hemorrhage.

was seen which was covered by a thin, white membrane continuous with the pia mater of the brain. A defect about 2 inches long by 1¾ inches in length was found in the dura. The margins of the dura around this defect were firmly attached to the cortex of the brain and to the membrane about the base of the tumor. An incision was made through the membrane, forming the tumor wall, which opened a cavity somewhat larger than an English walnut. This was lined with a smooth, glistening membrane. The cavity was filled with a light, straw colored fluid, and in the bottom were flakes of a dark colored substance which were considered the remains of an old blood clot. The lining membrane of the cyst cavity, which was extremely thin, was dissected from the walls of the cyst, together with the portion that formed the protruding tumor. The dural margins were freed by dissection from the underlying brain. A free transplant of fascia lata with an attached piece of fat from the buttock were used to fill the defect and cyst cavity. An osteoperiosteal graft taken from the tibia was employed to close the defect in the cranium. Because of the irregularity in the cranial defect, the bone transplant could be brought in contact with the bones of the skull only at its ends. It was secured in place by sutures of catgut passed through drill holes made in the graft and in the corresponding part of the skull margin. The adjacent part of the marginal defect was closed by sliding portions of the outer table of the skull.

Subsequent Course.—The wound healed by primary union. The patient was discharged, February 6. He had no convulsions after the operation while he remained in the hospital. In July, 1916, the patient returned to the hospital with a small fistulous opening in the anterior margin of the former bone defect. This fistula had appeared about two weeks before. Examination revealed a necrosed fragment three-fourths inch in length by one-half inch in width. This was removed under local anesthesia. The fistulous tract was curetted and disinfected. The remaining portion of the graft seemed intact and firmly adherent to the surrounding skull. After the curettage the wound healed rapidly, and the patient was discharged from the hospital ten days later. Up to that time he had no return of convulsions. About nine months after the operation, he had one convulsive attack. This was followed by an attack one year later. Since then there has been no return of the convulsions.

CASE 3.—M. S., a Polish laborer, aged 41, came to Dr. William Orr of LaSalle, Ill., in 1912, complaining of constant increasing temporal headache and gradual loss of vision. Physical and laboratory examinations gave no results from which a definite diagnosis could be made other than that the patient was suffering from increased intracranial pressure, probably from an intracranial tumor. The cranial cavity was opened, and an "aspirator" was introduced into the lateral ventricles. The pressure here was not increased. A right posterior occipital decompression was made, the surgeon concluding that there was probably a benign brain tumor involving both optic tracts. The headaches were relieved for several months, but six months after the operation there was a slight bulging at the decompression site, which gradually increased.

In December, 1917, the patient entered the hospital complaining of a soft, fluctuating tumor of the right occipital and parietal regions, blindness, and total deafness in the left ear. The tumor was half as large as a toy balloon. With the increase in size of the tumor, the patient had gradually lost his hearing. During sudden exertion, as coughing or sneezing, there was a marked pulsation of the swelling of the head, and "a feeling as though it would burst." The circumference of the tumor at its junction with the head was 40 cm. There was lateral nystagmus, the quick component to the right; the pupils were irregular and unequal, and their reaction to light was sluggish. There was secondary optic atrophy. The reflexes, except the pupillary, were normal; the Babinski was absent on each side. There was no paralysis or interference with cutaneous sensations. There was no pathologic change of the urine. Blood and spinal fluid Wassermann reactions were clearly negative. There were 2 cells per cubic millimeter of cerebrospinal fluid; the Ross-Jones and Pandy tests for globulin were positive. Under ether anesthesia, the scalp opposite the tumor was incised and the dura mater under it opened, allowing small amounts of the cerebrospinal fluid to escape at short intervals. After most of this had drained, the incisions in the dura were enlarged, the flaps were turned out of the way, and a smooth-lined cavity, 5 cm. wide and from 10 to 15 cm. deep, was excised in the right occipitoparietal part of the brain. The cerebrum was here retracted from the skull bones. The lining of the cyst was dissected free from the scalp and skull bones; its interior was roughened and

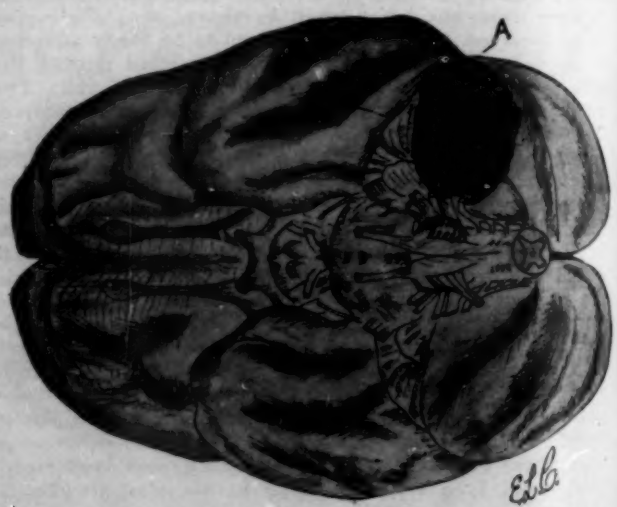

Fig. 2.—Inferior surface: *A*, glioma of cerebellum.

filled with a fat and fascia lata transplant; the margin of the fascia lata transplant was placed between the cranial bones and the dura, and secured by an occasional suture. The scalp wound was then closed. Following the operation, the patient regained consciousness. The next day he complained of pain in the head and eyes, and there was a left hemiplegia. The pulse was 88, and the temperature, 100.6. There were 16,900 leukocytes to a cubic millimeter of blood. The urine was unaltered. The second day after the operation the patient was able to move his left arm and grasp

objects. There were 15,900 white blood cells per cubic millimeter. The systolic blood pressure was 160; the diastolic, 66. The temperature range was from 100 to 102.4; the pulse, from 88 to 106. Urine was involuntarily passed once. The third day the temperature was from 101 to 102; the pulse, from 100 to 106; the respirations were 24. There was no incontinence of urine. The leukocyte count was 15,800. The temperature was from 100.2 to 102.2; pulse, from 88 to 104; respiration rate, 24 on the fourth day after operation. There were 13,000 leukocytes per cubic millimeter of blood. The power and movements of the left arm increased, and there was a slight bulging of the wound. The fifth day following the operation, the mental condition was a little cloudy, and the pulse more rapid, from 96 to 106. The respiration rate was from 18 to 24, the temperature from 100.3 to 104.3. Again there was incontinence of urine. On the sixth day the patient was very unruly and restless, constantly picking at his bandages till he had to be restrained. He gradually seemed to be losing strength. Hjs pulse was from 80 to 106, the respiratory rate from 20 to 22, and the temperature range from 101 to 102.4. In the next two days the temperature gradually rose from 101 to 105, the pulse from 120 to 144, respiration from 26 to 36, and the leukocyte count to 14,000. Swallowing was difficult and the patient unconscious. On the eleventh day following the operation the temperature rose to 107.4, respiration to 55, and the patient became pulseless and died.

Dr. Leland C. Shafer, assistant pathologist of the hospital, who made the postmortem examination three hours later,

Fig. 3.—Coronal section through cerebrum, 8 mm. behind pedunculi cerebri: *A*, fat and fascia transplant in place in brain; *B*, hemorrhage. Figures 3, 4 and 5 were made by placing a glass plate over the coronal sections of the brain, transferring the outline to paper, and sketching in the details.

found some focal atrophy of the cerebral cortex, hyperemia and edema of the leptomeninges, and slight compressions of the brain. The dura was incised for 4 cm. opposite the defect in the calvarium. Loosely adherent fat and fascia filled the defect in the calvarium and extended into a cavity in the right parietal lobe and adjoining part of the occipital lobe, 5 cm. in diameter and almost circular. This extended back to 2 cm. from the back pole of the brain. There was dark red blood in and beneath the leptomeninges from 3 to 5 mm. out from the defect of the brain. There was an irregular tumor, 4.5 by 3 cm., in the left cerebellopontile angle of the brain, its front end 1 cm. from the most anterior part of the pons, its back end opposite the most posterior part of the cerebellum. It compressed the left half of the pons, the trochlear, trigeminal, abducens, facial and acoustic nerves, the flocculus and the left lobulus quadrangularis of the cerebellum (Fig. 2 *B*). The arachnoid on the tumor was thick. Examination of the brain after hardening in formaldehyd, in the usual way, revealed that the lateral ventricles at the anterior commissure were 1.7 cm. in their greatest transverse dimension. The right lateral ventricle was partly filled with a yellow, lobulated mass of fat (*A*, Figs. 3, 4 and 5), 5.2 cm. long, 3.8 cm. wide and 3 cm. high, beginning 1 cm. behind the foramen of Monro, extending to 3 cm. from the back end of the occipital lobe, and filling a defect of the roof of the right lateral ventricle, 3.5 cm. in diameter, that was opposite the opening, already mentioned, of the outside of the brain. There were dark red to brown clots, slightly adherent between the fat and brain substance, most at the front and back ends of the right lateral ventricle (*B*, Figs. 3, 4 and 5). Surfaces made by sectioning the cerebellum ranged from yellow to gray, except in the left anterior end, where there was a gray-black mass 4.8 cm. long, 2.9 cm. wide and 3 cm. high, irregularly mottled with black and white areas. This tumor was sharply encapsulated, and could be separated from the cerebellar tissue except in places where gray bands extended into the surrounding brain substance.

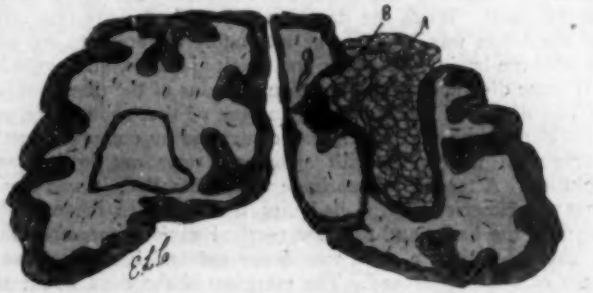

Fig. 4.—Coronal section through posterior part of parietal lobes: *A*, fat and fascia transplant; *B*, hemorrhage.

In microscopic sections of the fat transplant, there were living connective tissue matrix and spaces left by fat globules that had been dissolved in fixation. The tumor of the cerebellum was brain tissue rich in glia cells and infiltrated with many round cells. This tumor was very vascular, and in places there were organizing blood clots and small hemorrhages.

CASE 4.—*Compound comminuted depressed fracture of the skull; jacksonian epilepsy beginning five years after the injury.*

History.—F. G., a white woman, aged 24, married, admitted to the hospital, Sept. 26, 1921, had a pulsating area over the right parietal bone near the anterior superior angle. Convulsive attacks were becoming more frequent, and there were loss of memory and insomnia. In 1916, while she was in an old-fashioned swing made of logging chains, the swing broke; the heavy chain struck the patient on the right side of the head. Immediately after the injury she was able to walk to the house, a distance of about 50 yards, and, on entering, fell unconscious to the floor. The family physician found a lacerated wound of the scalp about 4 inches in length. Underneath was a compound fracture of the skull, with a completely detached piece of bone somewhat larger than a silver dollar. There was found also a laceration of the dura and an injury to the brain. The physician stated that while he was examining the wound a teaspoonful of brain substance escaped. After cleansing the wound and removing the loose fragments of bone, without any attempt to close the dura, he sutured the

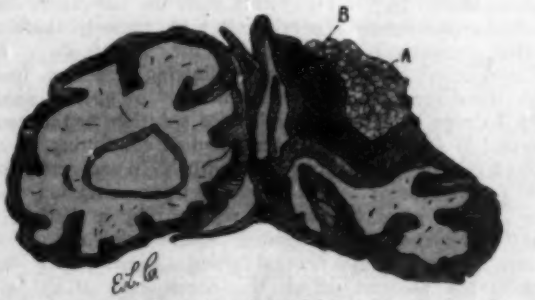

Fig. 5.—Cross-section through occipital lobes: *A*, transplant in ventricle and filling defect of brain; *B*, hemorrhage.

scalp. The wound healed without any untoward symptoms. For five years she remained perfectly well. Three months before entrance she began to have attacks of jacksonian epilepsy. These attacks came on at least once a day and with increasing severity. The patient was extremely nervous, and was unable to sleep without hypnotics. She had lost flesh, her appetite had failed, and there had been a general deterioration of her health since the onset of the convulsions. Examination revealed a defect in the right parietal bone near

its anterior superior angle. This defect was oval, and measured about 1½ inches in its longest diameter and 1⅛ in its shortest. There was a firm, dense scar covering the defect in the bone. There was distinct pulsation over this scar. The hair was absent over the scar. With the exception of a slight exaggeration of the patellar and pupillary reflexes, there was nothing else worthy of note. The eyegrounds were normal.

Operation and Result.—December 16, after the usual preparation of the scalp, a curved incision 4½ inches long was made, the center of the convexity corresponding to the defect in the skull. When the flap was reflected, the scar covering in the defect was found to be intimately adherent to the surface of the brain. This scar was thick and firm, and extended for some distance beyond the torn margins of the dura. When it was dissected free from the surface of the brain there was considerable oozing, which was controlled by compressing the surface of the brain with sponges wrung out in hot salt solution. After the hemorrhage was controlled, it was found that the cicatricial tissue had dipped in between the convolutions of the brain and that the cortical surface corresponding to the defect in the skull was depressed and had the appearance of being sclerosed. The margins of the dura about the defect were lifted from the brain surface, trimmed, and then fastened to a free fascial transplant taken from the thigh. The transplant, which, was covered with a layer of fat, sufficient to fill the defect in the brain, was secured by suture to the dura. The opening in the skull was closed by sliding the flaps composed of the external table of the skull with its periosteum, after the method of Koenig.

The wound healed by primary union. The patient was discharged, Jan. 8, 1922. Her general health improved while in the hospital, and she had no convulsions. On the last report, eight months after the operation, she stated that she had had no recurrence of the convulsions, but was still nervous and suffered from insomnia.

Clinical Notes, Suggestions, and New Instruments

THE ANALYSIS OF GASTRIC JUICE FOR "FREE ACIDITY (ORGANIC AND INORGANIC)" *

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In the analysis of gastric juice, the amount of "hydrochloric acid," of "total acid," and sometimes of "free acid—organic and inorganic" which it contains are determined. In these determinations a sample of the gastric juice is titrated with alkali to three different hydrogen ion concentrations, shown by the end-points with the indicators dimethylamino-azobenzene (Töpfer's reagent), phenolphthalein and alizarin, respectively. For titrating the "free acidity, organic and inorganic," Hawk[1] gives the following directions included under the discussion of Töpfer's method of gastric analysis: "Add 3 drops of alizarin sulphonate solution to the contents of vessel B (a beaker or porcelain dish containing 10 c.c. of strained gastric juice) and titrate with N/10 sodium hydroxide until a *violet* color is produced. In this titration the red color . . . must be entirely replaced by a *distinct violet color.*" The end-point described is the color change which alizarin shows at the neutral point ($p_H = 7$), and by the titration the amount of all the compounds in the gastric juice which have an acid reaction is determined.

In this laboratory, bromthymol blue (dibromthymolsulphonephthalein)[2] has been used successfully instead of alizarin for this titration. This indicator shows sharper changes at the neutral point than does alizarin, and has been used successfully by Hall[3] in adjusting the reaction of mediums, as well as by Clark[4] and others for determining the reaction of solutions at or near the neutral point.

In investigating the use of this indicator for titrations of gastric juice, a standard solution which had a hydrogen ion concentration of $p_H = 7$ was prepared from the buffer solution of Acree and his co-workers.[5] Any of the solutions described by Clark[4] would, of course, have been satisfactory. To two portions of this alizarin and bromthymol blue, in the concentrations in which they were to be used in the determination, were added. A large number of gastric specimens were titrated with both indicators until the color matched that of the standards. The results agreed in a satisfactory manner, and it was found much easier, even in the presence of considerable amounts of bile, to read the end-point with bromthymol blue than with alizarin. Many of the determinations were carried out with hundredth normal alkali on 1 c.c. of gastric juice diluted with from 5 to 10 c.c. of distilled water, for the end-point with bromthymol blue was sharp enough to give reliable results under these conditions. After about fifty determinations had been made, it was possible to discard the standard end-point and rely only on the color change.

In our opinion there was as high a degree of accuracy in the determinations so carried out as there is in the titration of free hydrochloric and total acid to the end-points with Töpfer's reagent and phenolphthalein. While it is doubtless of advantage to use the standard end-point, at least while learning the method, nevertheless we feel that a study of the color chart given opposite page 40 in Clark's Book,[4] or a little practice in carrying out the titration of standard alkali against standard acid by this indicator, will give sufficient skill for titrating the acidity of gastric contents with bromthymol blue. Certainly, in our hands this indicator has proved more satisfactory for this purpose than has alizarin.

HERPES ZOSTER WITH MOTOR PARALYSIS

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Bloedorn and Roberts[1] recently reviewed the literature on abdominal muscle paralysis associated with herpes zoster, and reported a case. I am able to add another case:

REPORT OF CASE

E. S., a man, aged 66, a retired farmer, seen, Feb. 14, 1924, had a typical eruption of herpes zoster of the skin supplied by the fibers of the tenth right thoracic nerve trunk. The eruption had been present for two weeks before I saw him, but as the pain became severe, he sought medical attention. Physical examination showed marked pyorrhea alveolaris, but otherwise was negative, except that the patient had had constipation for years, which seemed to be made worse by the herpes zoster. He was given local treatment for the eruption. One week later I was again called because of a "tumor" of the abdomen and to relieve the constipation. At this time a protrusion of the right side of the abdomen was noted, which was much more prominent on standing and on increasing intra-abdominal pressure. Palpation did not reveal a tumor. The muscles were quite flaccid in the area of this protrusion. The constipation was relieved and the patient given assurance that no tumor was present. The protrusion of the abdominal wall was felt to be due to a paralysis of the muscles in this region.

It is still too early to detect any improvement in the paralysis.

COMMENT

This case presents the rare condition of abdominal muscle paralysis associated with herpes zoster and the lateness of the appearance of the paralysis, namely, three weeks.

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* From the laboratories of the Clifton Springs Sanitarium.

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STATE BOARD STATISTICS FOR 1923

ANNUAL PRESENTATION BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION OF RESULTS OF STATE BOARD EXAMINATIONS

On pages 1344 to 1351 are three tables, A, B and C, giving in detail the results of the various state medical license examinations held during 1923. All state licensing boards sent in reports, and the figures have been carefully verified.

Tables A and B, when read from left to right, show for each medical college named (*a*) the number of graduates appearing for examination in each state, (*b*) whether they passed or failed, (*c*) the total number examined during the year, (*d*) the number who passed, (*e*) the number who failed, (*f*) the percentage of failures, and (*g*) the number of states in which graduates of that school appeared for examination. Read from above downward, they give the results by states, showing (*h*) the number registered and rejected from each college, (*i*) the total numbers examined, registered and rejected, and (*j*) the percentage of rejections. The majority of graduates take the license examination in the state in which the college is located, as shown by the dark diagonal zone of figures passing from the upper left to the lower right corner of each table. These tables are worthy of careful study, since important deductions are possible. The marginal numbers will enable one to follow readily the line for any college.

Graduates of All Years Examined in 1923

Table A shows the results for all candidates who took examinations in 1923, regardless of the years in which they graduated. This shows that altogether 4,698 candidates were examined last year, as compared with 3,993 in 1922, 4,807 in 1921, 4,787 in 1920 and 4,736 in 1919. This year shows an increase of 705 over last year but a decrease of 109 below 1921. Since 1906 and until 1919 there was a steady decrease in the totals examined owing chiefly to (*a*) the increasing number registered through reciprocity, and (*b*) the general diminution in the number of medical colleges, and, prior to 1919, in the numbers of students and graduates. The marked decrease in 1918 was due to the enlistments for military medical service. Since 1918 there was a constant increase, except in 1922 when the decrease was due to the small number, 2,529—the war class—who graduated in that year. With the larger classes now being graduated each year, corresponding increases in the numbers licensed may be expected. Of those examined in 1923, 14.9 per cent. failed, as compared with 12.3 in 1922, 12.4 in 1921, 15.3 in 1920 and 14.3 in 1919.

There were 70 medical colleges in the United States granting degrees in 1923, which had graduates examined—the same number as in 1922—as compared with 75 in 1921, 78 in 1920, and 79 in 1919. There has been a decrease of 83 since 1905, when graduates from 153 medical colleges were examined. The statistics covering schools which have ceased to exist are included in the line for "miscellaneous colleges."

Graduates of Canadian medical schools were examined last year in 24 states. This year 140 were examined, as compared with 82 in 1922, and 90 in 1921. The largest number, 41, were examined in New York, the next largest number being 32 examined in Michigan. The figures for each college are given separately in order to show the successes and failures of their graduates at the examinations. Altogether, 140 candidates from Canadian colleges were examined, of whom 17, or 12.1 per cent., failed.

The number of foreign physicians seeking licensure in the United States have been steadily increasing since the World War. There were 371 in 1923, exclusive of those from Canada, as compared with 186 in 1922, 176 in 1921, 86 in 1920 and 67 in 1919. Of the 371 examined in 1923, 165, or 44.5 per cent., failed. This year, foreign graduates were examined in 31 states, the largest number, 109, being examined in New York, where 59, or 54.1 per cent., failed. From all foreign countries, including Canada, 511 candidates were examined, of whom 329 passed and 182, or 35.6 per cent., failed.

Caution in Forming Conclusions

In making comparisons on the basis of these statistics, the reader must keep in mind (*a*) the number of graduates examined; (*b*) the number of states in which a school's graduates have been examined; (*c*) the character of the board making the examination and the methods employed. Some boards refuse to examine graduates of inferior medical colleges, while others (see Table I, footnotes) not only examine graduates of all medical colleges but also admit osteopaths to the physicians' and surgeons' examination. Some boards hold careful examinations which include practical laboratory and clinical tests, or they mark the papers more severely, while others, especially partisan boards, are very lenient. It is particularly important, in forming conclusions based on these statistics, to note for each college the states in which its graduates are not admitted to examinations, information which is set forth with these statistics in Table D. A state board which admits to its examinations graduates of low-grade medical schools would be expected to have a higher percentage of failures.

Undergraduates and Osteopaths Examined as Physicians During 1923

For the last four years the few undergraduates examined have been accidental or exceptional instances due evidently to imperfect credentials. In 1923, one undergraduate was licensed in Kentucky and one each failed in Illinois and West Virginia. In 1906, by contrast, there were 703 undergraduates examined, and 342 were licensed. Colorado is now the only state which will knowingly admit nongraduates to its examinations, but only seven have been licensed in that state in sixteen years. The door has been practically closed, therefore, against the admission to practice of those whose medical training is known to be incomplete. At present, however, several boards register as physicians and surgeons, by examination or by reciprocity, graduates of osteopathic colleges, no one of which compares favorably with the lowest grade Class C medical college. In 1923, 55 osteopaths were examined as physicians in three states, and 37 of these were licensed and 18, or 32.7 per cent., failed. The largest number, 26, were licensed in Massachusetts, 11 in Texas, 10 in Colorado and 1 in Wisconsin. In two of these states—Colorado and Texas[1]—the boards refuse to admit graduates of Class C medical schools to their examinations, but nevertheless examine graduates of osteopathic colleges which, in fact, are nothing more than very low-grade medical schools.

Recent Graduates Examined During 1923

Table B gives the results for graduates of 1919 to 1923, inclusive, who were examined during 1923. This table is important, since it deals with recent graduates, and is, therefore, the fairest basis for comparison between colleges. Of all candidates examined in 1923, 3,985, or 84.8 per cent., were recent graduates, and of this number 10.8 per cent. failed, as compared with 14.9 per cent. for all candidates.

Old Practitioners Examined During 1923

Table C is so arranged as to show in comparison the results for graduates of all years (first column), for recent graduates (second column), for graduates of 1918 and previous years (third column), and for graduates of 1923 (fourth column). Of the graduates of 1918 and previous years—"old practitioners"—655 were examined, and of this number 406, or 38.0 per cent., failed, as compared with 10.8 per cent. of failures for recent graduates. The total number of these

(CONTINUED ON PAGE 1351)

1. See Table D on pages 1352, 1353.

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Arizona P	2 Arizona F	3 Arkansas P	3 Arkansas F	4 California P	4 California F	5 Colorado P	5 Colorado F	6 Connecticut P	6 Connecticut F	7 Delaware P	7 Delaware F	8 Dist. Columbia P	8 Dist. Columbia F	9 Florida P	9 Florida F	10 Georgia P	10 Georgia F	11 Idaho P	11 Idaho F	12 Illinois P	12 Illinois F	13 Indiana P	13 Indiana F	14 Iowa P	14 Iowa F	15 Kansas P	15 Kansas F	16 Kentucky P	16 Kentucky F	17 Louisiana P	17 Louisiana F	18 Maine P	18 Maine F	19 Maryland P	19 Maryland F	20 Massachusetts P	20 Massachusetts F	21 Michigan P	21 Michigan F	22 Minnesota P	22 Minnesota F
	ARKANSAS																																												
1	University of Arkansas Medical Department	0	1			3	0											1	0	1	0													1	0										
	CALIFORNIA																																												
2	College of Medical Evangelists			1	0			35	0	1	0											1	0																						
3	Stanford University School of Medicine							22	0																																				
4	University of California Medical School							38	0																																				
	COLORADO																																												
5	University of Colorado School of Medicine							2	0	21	0																													2	0				
	CONNECTICUT																																												
6	Yale University School of Medicine							1	0			14	0					1	0																	3	0			1	0				
	DISTRICT OF COLUMBIA																																												
7	Georgetown University School of Medicine											2	0			19	0							1	0															2	0				
8	George Washington University Medical School					1	0	1	0			2	0			11	0	1	0					1	1																				
9	Howard University School of Medicine							0	1			1	0			13	1			1	0	1	0	0	2													2	3						
	GEORGIA																																												
10	Emory University School of Medicine	7	0															4	1	51	0			1	1																				
11	University of Georgia Medical Department																	2	1	10	0																								
	ILLINOIS																																												
12	Chicago Medical School																							20	25																				
13	General Medical College			0	1			0	4									0	1					18	10	1	0															1	0		
14	Loyola University School of Medicine							1	0															22	7																	1	0		
15	Northwestern University Medical School							5	0	1	0							2	0					66	3			1	0					2	0					1	0		
16	Rush Medical College (University of Chicago)							17	1	1	0							2	0	1	0			80	2			1	0													4	0		
17	University of Illinois College of Medicine							5	1	1	0													73	3																	3	0		
	INDIANA																																												
18	Indiana University School of Medicine																	1	0			1	0			57	0					1	0										
	IOWA																																												
19	State University of Iowa College of Medicine							0	1															3	0			44	0																
	KANSAS																																												
20	University of Kansas School of Medicine																													20	0									1	0				
	KENTUCKY																																												
21	University of Louisville Medical Department							0	2																	4	0					25	0										
	LOUISIANA																																												
22	Tulane University of Louisiana School of Medicine	15	0	1	0	3	0											4	1															52	0					1	0		
	MARYLAND																																					50	0						
23	Johns Hopkins University Medical Department							2	0			1	0			2	0	1	0					1	0													25	0	1	0	6	0		
24	Univ. of Md. School of Med. and Coll. of P. & S.											4	0					1	0			1	0																						
	MASSACHUSETTS																																												
25	Boston University School of Medicine																	1	0																	1	0			13	0				
26	College of Physicians and Surgeons, Boston											0	1			0	1	0	1					1	1															6	5				
27	Harvard University Medical School	3	0					7	1			6	0					2	0			1	0	5	0					1	0					12	0			41	0	5	0	1	0
28	Middlesex College of Medicine and Surgery.—N.											3	0																											16	13				
29	Tufts College Medical School							2	0			4	1					2	0					2	1											1	0			50	3			1	0
	MICHIGAN																																												
30	Detroit College of Medicine and Surgery							0	1																																	25	0		
31	University of Michigan Medical School	1	0					2	0							2	0	2	0	1	0					1	0													1	0	113	0	2	0
	MINNESOTA																																												
32	University of Minnesota Medical School							2	0															1	0																			56	0
	MISSOURI																																												
33	Kansas City College of Medicine and Surgery.—N.					30	2					1	1	14	0									1	1																				
34	Kansas City University of Phys. and Surgs.—N.											6	2																											2	0				
35	St. Louis College of Physicians and Surgeons			1	0			0	3	1	3	1	0			0	3							2	3															9	19				
36	St. Louis University School of Medicine							6	0									4	0					7	1			1	0					1	0					2	0				
37	Washington University School of Medicine					2	0	3	1															1	1					1	0											1	0		
	NEBRASKA																																												
38	Creighton University College of Medicine																																												
39	University of Nebraska College of Medicine			1	0			2	1																																				
	NEW YORK																																												
40	Albany Medical College							0	1																															1	0				
41	Columbia University College of Phys. and Surgs.											3	0					1	0																					2	0			1	0
42	Cornell University Medical College											3	0																											1	0				
43	Long Island College Hospital																	1	0																			1	0	2	1				
44	New York Homeo. Med. Coll. & Flower Hosp.—H.																	0	1																										
45	Syracuse University College of Medicine																																							1	0				
46	University and Bellevue Hospital Medical College											1	0			1	0											1	0	1	0														
47	University of Buffalo Medical Department																	1	0																										
	OHIO																																												
48	Eclectic Medical College.—E.							0	1									1	0					0	1	1	0					1	0										
49	Ohio State University College of Medicine																	2	0																										
50	University of Cincinnati College of Medicine							1	0									2	0					1	0							1	0							1	0				
51	Western Reserve University School of Medicine							1	2																																				
	OKLAHOMA																																												
52	University of Oklahoma School of Medicine							1	0	1	0							1	0					1	0							1	0												
	OREGON																																												
53	University of Oregon Medical School																																												
	PENNSYLVANIA																																												
54	Hahnemann Medical College and Hospital.—H.							0	1					3	0	1	0							1	0							1	0					1	0	1	0				
55	Jefferson Medical College	1	0	1	0			1	1			4	1					1	0	1	0			5	0											1	0	1	0	2	0				
56	Temple University School of Medicine													2	0	1	0																					2	0	1	0				
57	University of Pennsylvania School of Medicine	1	0					5	0	1	0	1	1			1	0	3	0					1	0					1	0									2	0	2	0	1	0
58	University of Pittsburgh School of Medicine																	1	1																										
59	Woman's Medical College of Pennsylvania																																												
	SOUTH CAROLINA																																												
60	Medical College of the State of South Carolina																	4	0																										
	TENNESSEE																																												
61	Meharry Medical College	1	0			1	1					0	1							11	0			11	1					3	0	3	1	5	0							1	0		
62	University of Tennessee College of Medicine	2	0			2	0	0	1									2	1	2	0			1	0																				
63	University of West Tennessee Medical Department									1	2																															0	1				
64	Vanderbilt University School of Medicine	3	0			2	0	2	1							1	0	3	0																			1	0						
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22	

H = Homeopathic; E = Eclectic; N = Nondescript; P = Passed; F = Failed.

| | 24 Missouri | | 25 Montana | | 26 Nebraska | | 27 Nevada | | 28 New Hampshire | | 29 New Jersey | | 30 New Mexico | | 31 New York | | 32 North Carolina | | 33 North Dakota | | 34 Ohio | | 35 Oklahoma | | 36 Oregon | | 37 Pennsylvania | | 38 Rhode Island | | 39 South Carolina | | 40 South Dakota | | 41 Tennessee | | 42 Texas | | 43 Utah | | 44 Vermont | | 45 Virginia | | 46 Washington | | 47 West Virginia | | 48 Wisconsin | | 49 Wyoming | | 50 U. S. Territories and Possessions | | Totals | Examined—Passed | Examined—Failed | Percentage of Failures | No. States Exam. In | Marginal Number |
|---|---|---

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Arizona P	2 Arizona F	3 Arkansas P	3 Arkansas F	4 California P	4 California F	5 Colorado P	5 Colorado F	6 Connecticut P	6 Connecticut F	7 Delaware P	7 Delaware F	8 Dist. Columbia P	8 Dist. Columbia F	9 Florida P	9 Florida F	10 Georgia P	10 Georgia F	11 Idaho P	11 Idaho F	12 Illinois P	12 Illinois F	13 Indiana P	13 Indiana F	14 Iowa P	14 Iowa F	15 Kansas P	15 Kansas F	16 Kentucky P	16 Kentucky F	17 Louisiana P	17 Louisiana F	18 Maine P	18 Maine F	19 Maryland P	19 Maryland F	20 Massachusetts P	20 Massachusetts F	21 Michigan P	21 Michigan F
	TEXAS																																										
65	Baylor University College of Medicine																																										
66	University of Texas School of Medicine							1	0																																		
	VERMONT																																										
67	University of Vermont College of Medicine							0	1			3	1																											1	0		
	VIRGINIA																																										
68	Medical College of Virginia															2	0																					0	1	2	0		
69	University of Virginia Department of Medicine																															1	0										
	WISCONSIN																																										
70	Marquette University School of Medicine																							1	1																				
	PHILIPPINE ISLANDS																																										
71	University of the Philippines, Manila																																										
72	University of St. Thomas, Manila																	0	1																										
	CANADA																																										
73	Dalhousie University Faculty of Medicine																																											
74	Laval University Faculty of Medicine							0	1																											2	0						
75	McGill University Faculty of Medicine							4	0			2	0			1	0							1	0					1	0					5	0	2	0	1	0	6	0
76	Queen's University Faculty of Medicine							1	0																															1	0	1	0
77	University of Manitoba Faculty of Medicine							1	1															1	0															1	0		
78	University of Montreal Medical Faculty																																			1	0						
79	University of Toronto Faculty of Medicine			1	0			2	0			1	0					1	0					2	0													1	0			24	6
80	University of Western Ontario Medical School																							0	1																	1	0
81	Foreign Colleges	1	0					9	10	3	0	6	10			1	0	0	3	0	1			18	17	3	0	3	0	1	0							4	1	18	6	9	5
82	Miscellaneous Medical Colleges	1	1	0	1	6	0	2	30	2	3	1	3			1	1	17	16	1	0	4	0	2	8			2	0	2	0	1	1	3	0					6	4		
83	Undergraduates and Osteopaths									10	8													0	1							1	0							26	10		
84	Totals by States	38		8		54		253		70		96		5		63		100		81		9		455		67		53		31		41		66		28		90		283		204	
85	Totals — Examined — Passed	36		6		50		185		51		77		5		57		72		80		9		350		67		53		31		38		66		28		91		219		202	
86	Totals — Examined — Failed	2		2		4		68		19		19		0		6		28		1		0		105		0		0		0		3		0		0		5		62		2	
87	Percentage of Failures	5.3		25.0		7.4		22.9		27.1		19.8		0.0		9.5		28.0		1.2		0.0		23.1		0.0		0.0		0.0		7.5		0.0		0.0		5.2		22.1		1.0	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

H = Homeopathic; E = Eclectic; N = Nondescript; P = Passed; F = Failed.

TABLE B—GRADUATES OF 1919 TO 1923, INCLUSI

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Arizona P	2 Arizona F	3 Arkansas P	3 Arkansas F	4 California P	4 California F	5 Colorado P	5 Colorado F	6 Connecticut P	6 Connecticut F	7 Delaware P	7 Delaware F	8 Dist. Columbia P	8 Dist. Columbia F	9 Florida P	9 Florida F	10 Georgia P	10 Georgia F	11 Idaho P	11 Idaho F	12 Illinois P	12 Illinois F	13 Indiana P	13 Indiana F	14 Iowa P	14 Iowa F	15 Kansas P	15 Kansas F	16 Kentucky P	16 Kentucky F	17 Louisiana P	17 Louisiana F	18 Maine P	18 Maine F	19 Maryland P	19 Maryland F	20 Massachusetts P	20 Massachusetts F	21 Michigan P	21 Michigan F
	ARKANSAS																																										
1	University of Arkansas Medical Department																																										
	CALIFORNIA																																										
2	College of Medical Evangelists			1	0			24	0	1	0											1	0																				
3	Stanford University School of Medicine							22	0																																		
4	University of California Medical School							28	0																																		
	COLORADO																																										
5	University of Colorado School of Medicine							2	0	21	0																																	
	CONNECTICUT																																										
6	Yale University School of Medicine							1	0			14	0					1	0																	3	0			1	0		
	DISTRICT OF COLUMBIA																																										
7	Georgetown University School of Medicine											2	0			18	0							1	0															2	0		
8	George Washington University Medical School											2	0			11	0																										
9	Howard University School of Medicine							0	1			1	0			13	1			1	0															2	0			2	3		
	GEORGIA																																										
10	Emory University School of Medicine	7	0															2	1	51	0			1	1																				
11	University of Georgia Medical Department																			10	0																								
	ILLINOIS																																										
12	Chicago Medical School																							20	23																				
13	General Medical College			0	1			0	1															18	10	1	0															1	0
14	Loyola University School of Medicine							1	0															22	5																	1	0
15	Northwestern University Medical School							5	0	1	0							2	0					64	3			1	0					2	0								
16	Rush Medical College (University of Chicago)							17	0	1	0							1	0	1	0			89	2																	4	0
17	University of Illinois College of Medicine							3	0	1	0													72	3																	3	0
	INDIANA																																										
18	Indiana University School of Medicine																					1	0			57	0					1	0										
	IOWA																																										
19	State University of Iowa College of Medicine																							3	0			44	0														
	KANSAS																																										
20	University of Kansas School of Medicine																													20	0												
	KENTUCKY																																										
21	University of Louisville Medical Department																									4	0					25	0										
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

H = Homeopathic; E = Eclectic; N = Nondescript; P = Passed; F = Failed.

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. In	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
							2 1											17 0								1 1	22	20	2	9.1	3	65
							0 1											40 0									42	41	1	2.4	3	66
					1 0		1 2							1 0		1 0				22 0							34	30	4	11.8	6	67
							1 0	2 0	2 0						1 0			1 0			37 0		5 0				56	55	1	1.8	7	68
																					20 0		4 0				30	30	0	0.0	7	69
													1 0											26 0			29	28	1	3.4	3	70
																										16 4	20	16	4	20.0	1	71
1 0																										30 81	112	30	82	73.2	2	72
													1 0	0 1													1	1	0	0.0	1	73
	1 0			1 0	1 0		13 8			1 0			2 0	1 0													5	3	2	40.0	4	74
							6 3															1 0					53	45	8	15.1	18	75
									3 0				1 0														12	9	3	25.0	4	76
	1 0						10 1		1 0	3 0			5 1			1 0							1 0				8	7	1	12.5	5	77
2 2		3 2	1 0	20 13			50 59			16 3			4 2	1 0				6 0	0 1	2 0	6 1	2 0	3 3	3 0		9 29	371	206	165	44.5	31	81
	1 1	1 0					7 2	2 0	0 1	1 0	2 0		2 6	2 0	2 0	3 0					3 1		1 0	1 0		2 1	161	81	80	49.7	31	82
																		1 0					0 1				58	38	20	34.5	6	83
174	18	94	9	4	66	0	828	70	12	226	30	23	235	27	40	21	100	75	11	24	73	11	51	59	4	205	4068	....	....	....	....	84
145	17	94	7	4	52	0	675	65	11	222	27	19	215	26	40	21	100	75	10	24	71	11	47	59	3	80	....	3908	....	....	....	85
29	1	0	2	0	14	0	153	5	1	4	3	4	20	1	0	0	0	0	1	0	2	0	4	0	1	125	....	....	700	....	....	86
16.7	5.6	0.0	22.2	0.0	21.2	0.0	18.5	7.1	8.3	1.8	10.0	17.4	8.5	3.7	0.0	0.0	0.0	0.0	9.1	0.0	2.7	0.0	7.8	0.0	25.0	61.0	....	....	....	14.0	....	87
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

MINED BY STATE BOARDS DURING 1923

24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. In	Marginal Number
P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
																1 0	1 0										2	2	0	0.0	2	1
												0 1										1 0					39	38	1	2.6	6	2
							1 0																				23	23	0	0.0	2	3
1 0							1 0																				39	39	0	0.0	2	4
											1 0								1 0								25	25	0	0.0	4	5
2 0					1 0		7 1		7																		30	29	1	3.3	8	6
					3 0		7 6																			1 0	33	33	0	0.0	6	7
1 0					1 0		2 0	1 0											1 0		1 0						20	20	0	0.0	8	8
1 0					1 0		4 2	0 1		2 0			3 3								1 0		2 0	1 0			45	34	11	24.4	15	9
							1 1	2 2							1 0											1 0	73	68	5	6.8	10	10
							1 0																1 0				11	11	0	0.0	2	11
1 0			1 0																							0 1	48	22	26	41.7	4	12
																1 0										1 1	34	21	13	38.2	6	13
1 0	2 0	2 0					1 2	1 0	2 0	2 0	2 0								2 0							1 3	34	26	8	23.5	5	14
							5 0			2 0		1 0			1 0	1 0		1 0	2 0			1 0		3 0			103	98	5	4.9	17	15
							1 1			2 0														1 0		2 0	143	141	2	1.4	18	16
																											88	84	4	4.6	8	17
							1 0																				60	60	0	0.0	4	18
	1 0						1 0		1 0							1 0								1 0			52	52	0	0.0	7	19
							1 0																1 0				22	22	0	0.0	3	20
							1 0			1 0													2 0				33	33	0	0.0	5	21
24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

Marginal Number	NAME OF COLLEGE	1 Alabama P	1 Alabama F	2 Arizona P	2 Arizona F	3 Arkansas P	3 Arkansas F	4 California P	4 California F	5 Colorado P	5 Colorado F	6 Connecticut P	6 Connecticut F	7 Delaware P	7 Delaware F	8 Dist. Columbia P	8 Dist. Columbia F	9 Florida P	9 Florida F	10 Georgia P	10 Georgia F	11 Idaho P	11 Idaho F	12 Illinois P	12 Illinois F	13 Indiana P	13 Indiana F	14 Iowa P	14 Iowa F	15 Kansas P	15 Kansas F	16 Kentucky P	16 Kentucky F	17 Louisiana P	17 Louisiana F	18 Maine P	18 Maine F	19 Maryland P	19 Maryland F	20 Massachusetts P	20 Massachusetts F	21 Michigan P	21 Michigan F
	LOUISIANA																																										
22	Tulane University of Louisiana School of Medicine	15	0	1	0	3	0	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	51	0	..	..	..	..	..	..	..	..
	MARYLAND																																										
23	Johns Hopkins University Medical Department	..	..	..	..	..	..	1	0	..	..	1	0	..	..	2	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	50	0	..	..	5	0
24	Univ. of Md. School of Med. and Coll. of P. & S.	..	..	..	..	..	..	..	..	..	..	4	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	24	0	..	..	..	..
	MASSACHUSETTS																																										
25	Boston University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	13	0	..	..
26	College of Physicians and Surgeons, Boston	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	3	..	..
27	Harvard University Medical School	2	0	..	..	..	..	7	0	..	..	6	0	..	..	..	..	1	0	..	..	..	..	5	0	..	..	..	..	1	0	..	..	..	..	11	0	..	..	41	0	5	0
28	Middlesex College of Medicine and Surgery.—N.	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	16	13	..	..
29	Tufts College Medical School	..	..	..	..	..	..	2	0	..	..	4	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	49	3	..	..
	MICHIGAN																																										
30	Detroit College of Medicine and Surgery	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	0
31	University of Michigan Medical School	1	0	..	..	..	..	3	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	113	0
	MINNESOTA																																										
32	University of Minnesota Medical School	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	MISSOURI																																										
33	Kansas City College of Medicine and Surgery.—N.	..	..	..	..	30	3	..	..	1	1	14	0	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
34	Kansas City University of Phys. and Surgs.—N.	..	..	..	..	..	..	..	..	6	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	2	0	..	..
35	St. Louis College of Physicians and Surgeons	..	..	1	0	..	..	0	1	1	3	1	0	..	..	0	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	9	19	..	..
36	St. Louis University School of Medicine	..	..	..	..	..	..	6	0	..	..	..	..	..	..	..	..	4	0	..	..	..	..	7	1	..	..	1	0	..	..	..	..	1	0	..	..	..	..	1	0	..	..
37	Washington University School of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0
	NEBRASKA																																										
38	Creighton University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
39	University of Nebraska College of Medicine	..	..	1	0	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	NEW YORK																																										
40	Albany Medical College	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
41	Columbia University College of Phys. and Surgs.	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..
42	Cornell University Medical College	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..
43	Long Island College Hospital	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	..	..
44	New York Homeo. Med. Coll. & Flower Hosp.—H.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
45	Syracuse University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..
46	University and Bellevue Hospital Medical College	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..
47	University of Buffalo Medical Department	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	OHIO																																										
48	Eclectic Medical College.—E.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..
49	Ohio State University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
50	University of Cincinnati College of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	2	0	..	..	..	..	2	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..
51	Western Reserve University School of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	OKLAHOMA																																										
52	University of Oklahoma School of Medicine	..	..	..	..	..	..	1	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..
	OREGON																																										
53	University of Oregon Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	PENNSYLVANIA																																										
54	Hahnemann Medical College and Hospital.—H.	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	..	..
55	Jefferson Medical College	1	0	1	0	..	..	..	..	..	..	4	0	..	..	..	..	..	..	1	0	..	..	3	0	..	..	..	..	..	..	..	..	..	..	1	0	1	0	2	0	..	..
56	Temple University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	2	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	1	0	..	..
57	University of Pennsylvania School of Medicine	1	0	..	..	..	..	4	0	1	0	1	0	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	2	0	1	0	1	0
58	University of Pittsburgh School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
59	Woman's Medical College of Pennsylvania	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	SOUTH CAROLINA																																										
60	Medical College of the State of South Carolina	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	TENNESSEE																																										
61	Meharry Medical College	1	0	..	..	1	1	..	..	..	..	0	1	..	..	..	..	..	..	10	0	..	..	1	7	..	..	..	..	3	0	2	1	4	0	..	..	..	..	..	..	1	0
62	University of Tennessee College of Medicine	2	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	2	0	2	0	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
63	University of West Tennessee Medical Department	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
64	Vanderbilt University School of Medicine	3	0	..	..	1	0	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	TEXAS																																										
65	Baylor University College of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
66	University of Texas School of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	VERMONT																																										
67	University of Vermont College of Medicine	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	VIRGINIA																																										
68	Medical College of Virginia	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..
69	University of Virginia Department of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..
	WISCONSIN																																										
70	Marquette University School of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	PHILIPPINE ISLANDS																																										
71	University of the Philippines, Manila	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
72	University of St. Thomas, Manila	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	CANADA																																										
73	Dalhousie University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
74	Laval University Faculty of Medicine	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	0	..	..	..	..	..	..
75	McGill University Faculty of Medicine	..	..	..	..	..	..	2	0	..	..	2	0	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	1	0	..	..	..	..	4	0	2	0	1	0	4	0
76	Queen's University Faculty of Medicine	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	1	0
77	University of Manitoba Faculty of Medicine	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..
78	University of Montreal Medical Faculty	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..
79	University of Toronto Faculty of Medicine	..	..	1	0	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	22	0
80	University of Western Ontario Medical School	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
81	Foreign Colleges	1	0	..	..	..	..	3	5	2	0	3	4	..	..	1	0	0	2	..	..	..	..	8	6	1	0	..	..	1	0	..	..	..	..	..	..	1	1	6	3	6	1
82	Miscellaneous Medical Colleges	..	..	..	..	..	..	0	2	..	..	0	1	..	..	..	..	..	..	..	..	..	..	0	1	..	..	..	..	..	..	..	..	1	0	..	..	..	..	..	..	..	..
83	Undergraduates and Osteopaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
84	Totals by States	34		7		40		173		45		77		5		54		28		76		3		392		65		46		29		37		61		24		80		202		192	
85	Totals — Examined — Passed	34		6		36		161		35		71		5		49		25		76		3		326		65		46		29		35		61		24		85		160		191	
86	Totals — Examined — Failed	0		1		4		12		7		6		0		5		3		0		0		66		0		0		0		2		0		0		4		42		1	
87	Percentage of Failures	0.0		14.3		10.0		6.9		15.6		7.8		0.0		9.2		10.7		0.0		0.0		16.8		0.0		0.0		0.0		5.4		0.0		0.0		4.5		20.8		0.5	
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21	

H = Homeopathic; E = Eclectic; N = Nondescript; P = Passed; F = Failed.

	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						
	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Territories and Possessions	Totals	Examined—Passed	Examined—Failed	Percentage of Failures	No. States Exam. in	Marginal Number
	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
	9 0								3 1	6 1								1 0	1 0	3 0								1 0	99	97	2	2.0	12	22
							1 0		6 2	1 0	1 0	1 0			2 0	1 0			1 0				1 0	1 0					78	76	2	2.6	16	23
									12 1	8 0		1 0			2 0										11 0			1 0	65	64	1	1.5	9	24
									0 2						3 0													2 0	21	19	2	9.5	5	25
			1 0	1 0					15 1			8 0		1 0	1 0	4 0			1 0		2 0			1 0		7 0			9	5	4	44.4	2	26
		1 0							9 5						1 0	10 0												1 0	123	122	1	0.8	21	27
						1 0									1 0														33	20	13	39.4	3	28
															1 0														88	80	8	9.1	11	29
			1 0						12 0						5 0	1 0													26	26	0	0.0	2	30
																													141	141	0	0.0	11	31
									1 0		2 0													1 0				1 0	64	64	0	0.0	7	32
		8 5			1 0																								65	55	10	15.4	6	33
		1 3											0 1														0 1	0 1	18	10	8	44.4	6	34
		22 17							2 0			4 0			1 0			1 0								2 0		0 1	81	36	45	55.6	10	35
		59 0	1 0									1 0	1 0														1 0	1 0	92	91	1	1.1	14	36
		40 0		1 0																								1 0	48	48	0	0.0	9	37
			2 0	34 0					2 0		1 0							1 0											37	37	0	0.0	3	38
				55 0																									61	61	0	0.0	5	39
									14 0																				14	14	0	0.0	1	40
									90 9																				105	96	9	8.6	6	41
	1 0	1 0							63 4			1 0			1 0		1 0												74	70	4	5.4	6	42
									84 10						2 0														99	88	11	11.1	3	43
									21 2																				23	21	2	8.7	1	44
									36 1			1 0																1 0		40	39	1	2.5	4	45
	1 0	1 0							82 2						2 0														90	88	2	2.2	6	46
									45 4																				49	45	4	8.2	1	47
									7 0			15 0			1 0														26	26	0	0.0	6	48
												47 0			0 1														51	50	1	2.0	4	49
												59 0			1 0										2 0				69	69	0	0.0	8	50
			1 0									30 0													1 0				32	32	0	0.0	3	51
									3 2			1 0	18 2														1 0		31	27	4	12.9	8	52
														15 2										1 0					19	17	2	10.5	3	53
							4 0		2 1			1 0			14 2								2 0						32	29	3	9.4	9	54
	1 0						8 0		12 5	17 1		5 0	1 0	2 0	46 0	2 0	2 0	2 0		3 0			1 0		8 0				129	123	6	4.7	21	55
	2 0											1 0			14 4														25	21	4	16.0	6	56
	1 0	2 0	2 0			1 0	6 0		5 1	13 0					62 0					1 0	2 0		1 0		3 0		5 0	4 0	121	120	1	0.8	22	57
	1 0											5 0			23 0														31	31	0	0.0	3	58
									2 0			1 0			5 0		2 0										1 0		11	11	0	0.0	5	59
										1 0							25 0		1 0										30	30	0	0.0	4	60
	3 3	2 0		1 0					0 1	1 0		6 1	1 0				2 0		38 0	2 0			1 0		1 0				95	81	14	14.7	20	61
													1 0						18 0									0 2	28	27	1	3.6	8	62
												1 0							38 0										4	1	3	75.0	2	63
									2 1											17 0								1 1	44	43	1	2.3	5	64
																				40 0									22	20	2	9.1	3	65
							1 0		1 2							1 0						21 0							41	41	0	0.0	2	66
		1 0								8 0					36 0			1 0		1 0								28	26	2	7.1	5	67
									1 0	2 0					19 0														51	51	0	0.0	6	68
	1 0														1 0												26 0		29	29	0	0.0	7	69
																												16 4	29	28	1	3.4	3	70
																												29 80	20	16	4	20.0	1	71
																													100	29	80	73.4	1	72
																	0 1												0	0	0	0.0	0	73
																													4	2	2	50.0	3	74
				1 0			1 0		11 7			1 0			1 0									1 0					42	35	7	16.7	16	75
									3 3																				8	5	3	37.5	3	76
											3 0				1 0														6	6	0	0.0	4	77
																													1	1	0	0.0	1	78
				1 0					7 1		1 0	2 0			4 1											1 0			42	40	2	4.8	11	79
																													0	0	0	0.0	0	80
			0 2			3 1		10 0	18 25			7 3			1 0	1 0					3 0		1 1	1 0	1 1	1 0		23	165	87	78	47.3	26	81
									3 0						1 0	1 0													10	6	4	40.0	7	82
																													0	0	0	0.0	0	83
		25	169	11	94	6	2	37	0	709	66	11	213	28	22	210	22	35	9	99	71	10	21	65	8	43	52	2	187	3985	....	....	....	....	84
		22	142	11	94	5	2	37	0	609	61	11	209	25	19	199	21	35	9	99	71	10	21	64	8	42	52	1	70	....	3554	....	....	....	85
		3	27	0	0	1	0	0	0	100	5	0	4	3	3	11	1	0	0	0	0	0	0	1	0	1	0	1	117	....	....	431	....	....	86
		12.0	16.0	0.0	0.0	16.7	0.0	0.0	0.0	14.1	7.6	0.0	1.9	10.7	13.6	5.2	4.5	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	2.3	0.0	50.0	62.6	....	....	....	10.8	....	87
		23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50						

Marginal Number	NAME OF COLLEGE	Graduates of All Years					Graduates of 1919-1923					Graduates of 1918 and Previous					Graduates of 1923				
		Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States
	ARKANSAS																				
1	University of Arkansas Medical Department	9	8	1	11.1	7	2	2	0	0.0	2	7	6	1	14.3	5	2	2	0	0.0	2
	CALIFORNIA																				
2	College of Medical Evangelists	40	39	1	2.5	6	39	38	1	2.6	6	1	1	0	0.0	1	38	35	1	2.8	3
3	Stanford University School of Medicine	24	24	0	0.0	3	23	23	0	0.0	2	1	1	0	0.0	1	19	19	0	0.0	2
4	University of California Medical School	39	39	0	0.0	2	39	39	0	0.0	2	0	0	0	0.0	0	38	38	0	0.0	2
	COLORADO																				
5	University of Colorado School of Medicine	27	27	0	0.0	5	25	25	0	0.0	4	2	2	0	0.0	1	22	22	0	0.0	2
	CONNECTICUT																				
6	Yale University School of Medicine	33	31	2	6.1	10	30	29	1	3.3	8	3	2	1	33.3	3	20	20	0	0.0	4
	DISTRICT OF COLUMBIA																				
7	Georgetown University School of Medicine	35	35	0	0.0	7	33	33	0	0.0	6	2	2	0	0.0	2	24	24	0	0.0	4
8	George Washington University Medical School	28	27	1	3.6	13	20	20	0	0.0	8	8	7	1	12.5	6	15	15	0	0.0	6
9	Howard University School of Medicine	48	35	13	27.1	17	45	34	11	24.4	15	3	1	2	66.7	2	15	14	1	6.7	6
	GEORGIA																				
10	Emory University School of Medicine	75	70	5	6.7	10	73	68	5	6.8	10	2	2	0	0.0	1	60	60	0	0.0	6
11	University of Georgia Medical Department	14	13	1	7.2	3	11	11	0	0.0	2	3	2	1	33.3	1	10	10	0	0.0	1
	ILLINOIS																				
12	Chicago Medical School	48	22	26	54.2	4	48	22	20	41.7	4	0	0	0	0.0	0	37	17	20	54.0	1
13	General Medical College	39	21	18	46.2	8	34	21	13	38.2	6	5	0	5	100.0	3	30	19	11	36.7	3
14	Loyola University School of Medicine	41	31	10	24.4	7	34	26	8	23.5	5	7	5	2	28.6	4	23	21	2	8.7	2
15	Northwestern University Medical School	109	104	5	4.6	20	103	98	5	4.9	17	6	6	0	0.0	5	90	86	4	4.4	12
16	Rush Medical College (University of Chicago)	152	148	4	2.6	19	143	141	2	1.4	18	9	7	2	22.2	6	118	116	2	1.7	12
17	University of Illinois College of Medicine	95	88	7	7.4	9	88	84	4	4.6	8	7	4	3	42.9	4	85	82	3	3.5	6
	INDIANA																				
18	Indiana University School of Medicine	61	61	0	0.0	5	60	60	0	0.0	4	1	1	0	0.0	1	58	58	0	0.0	2
	IOWA																				
19	State University of Iowa College of Medicine	54	53	1	1.9	8	52	52	0	0.0	7	2	1	1	50.0	2	44	44	0	0.0	1
	KANSAS																				
20	University of Kansas School of Medicine	23	23	0	0.0	4	22	22	0	0.0	3	1	1	0	0.0	1	20	20	0	0.0	1
	KENTUCKY																				
21	University of Louisville Medical Department	41	38	3	7.3	9	33	33	0	0.0	5	8	5	3	37.5	5	31	31	0	0.0	4
	LOUISIANA																				
22	Tulane University of Louisiana School of Medicine	103	100	3	2.9	13	99	97	2	2.0	12	4	3	1	25.0	3	65	65	0	0.0	8
	MARYLAND																				
23	Johns Hopkins University Medical Department	86	84	2	2.3	18	78	76	2	2.6	16	8	8	0	0.0	6	50	50	0	0.0	5
24	Univ. of Md. School of Med. and Coll. of P. & S.	71	69	2	2.8	11	65	64	1	1.5	9	6	5	1	16.7	5	47	47	0	0.0	6
	MASSACHUSETTS																				
25	Boston University School of Medicine	22	20	2	9.1	6	21	19	2	9.5	5	1	1	0	0.0	1	13	13	0	0.0	2
26	College of Physicians and Surgeons, Boston	16	7	9	56.2	5	9	5	4	44.4	2	7	2	5	71.4	4	8	4	4	50.0	2
27	Harvard University Medical School	134	130	4	3.0	24	123	122	1	0.8	21	11	8	3	27.3	9	59	59	0	0.0	11
28	Middlesex College of Medicine and Surgery.—N.	33	20	13	39.4	3	33	20	13	39.4	3	0	0	0	0.0	0	19	12	7	36.8	2
29	Tufts College Medical School	97	87	10	10.3	12	88	80	8	9.1	11	9	7	2	22.2	7	54	50	4	7.4	4
	MICHIGAN																				
30	Detroit College of Medicine and Surgery	28	27	1	3.6	4	26	26	0	0.0	2	2	1	1	50.0	2	22	22	0	0.0	1
31	University of Michigan Medical School	146	146	0	0.0	13	141	141	0	0.0	11	5	5	0	0.0	4	117	117	0	0.0	4
	MINNESOTA																				
32	University of Minnesota Medical School	65	65	0	0.0	8	64	64	0	0.0	7	1	1	0	0.0	1	34	34	0	0.0	2
	MISSOURI																				
33	Kansas City College of Medicine and Surgery.—N.	65	55	10	15.4	6	65	55	10	15.4	6	0	0	0	0.0	0	43	39	4	9.3	3
34	Kansas City University of Phys. and Surgs.—N.	18	10	8	44.4	6	18	10	8	44.4	6	0	0	0	0.0	0	5	4	1	20.0	2
35	St. Louis College of Physicians and Surgeons	91	38	53	57.0	12	81	36	45	55.6	10	10	2	8	80.0	4	23	7	16	69.6	6
36	St. Louis University School of Medicine	94	93	1	1.1	14	92	91	1	1.1	14	2	2	0	0.0	2	86	85	1	1.2	11
37	Washington University School of Medicine	54	52	2	3.7	10	48	48	0	0.0	9	6	4	2	33.3	3	38	38	0	0.0	5
	NEBRASKA																				
38	Creighton University College of Medicine	39	38	1	2.6	4	37	37	0	0.0	3	2	1	1	50.0	2	36	36	0	0.0	2
39	University of Nebraska College of Medicine	62	61	1	1.6	5	61	61	0	0.0	5	1	0	1	100.0	1	52	52	0	0.0	3
	NEW YORK																				
40	Albany Medical College	17	16	1	5.9	3	14	14	0	0.0	1	3	2	1	33.3	3	14	14	0	0.0	1
41	Columbia University College of Phys. and Surgs.	112	102	10	8.9	10	105	96	9	8.6	6	7	6	1	14.3	7	77	72	5	6.5	2
42	Cornell University Medical College	75	71	4	5.3	6	74	70	4	5.4	6	1	1	0	0.0	1	60	57	3	5.0	2
43	Long Island College Hospital	106	92	11	10.7	5	90	68	11	11.1	3	4	4	0	0.0	3	88	80	8	9.1	1
44	New York Homeo. Med. Coll. & Flower Hosp.—H.	28	22	6	21.4	3	23	21	2	8.7	1	5	1	4	80.0	3	18	18	0	0.0	1
45	Syracuse University College of Medicine	40	39	1	2.5	4	40	39	1	2.5	4	0	0	0	0.0	0	34	33	1	2.9	3
46	University and Bellevue Hospital Medical College	93	91	2	2.1	9	90	88	2	2.2	6	3	3	0	0.0	3	82	81	1	1.2	2
47	University of Buffalo Medical Department	50	46	4	8.0	2	49	45	4	8.2	1	1	1	0	0.0	1	45	44	4	8.3	1
	OHIO																				
48	Eclectic Medical College.—E.	29	27	2	6.9	8	26	26	0	0.0	6	3	1	2	66.7	3	19	19	0	0.0	4
49	Ohio State University College of Medicine	51	50	1	2.0	4	51	50	1	2.0	4	0	0	0	0.0	0	46	46	0	0.0	1
50	University of Cincinnati College of Medicine	71	71	0	0.0	10	69	69	0	0.0	8	2	2	0	0.0	2	63	63	0	0.0	5
51	Western Reserve University School of Medicine	34	32	2	5.9	3	32	32	0	0.0	3	2	0	2	100.0	1	32	32	0	0.0	3
	OKLAHOMA																				
52	University of Oklahoma School of Medicine	32	28	4	12.5	9	31	27	4	12.9	8	1	1	0	0.0	1	23	21	2	8.7	8
	OREGON																				
53	University of Oregon Medical School	20	18	2	10.0	4	19	17	2	10.5	3	1	1	0	0.0	1	17	15	2	11.8	1
	PENNSYLVANIA																				
54	Hahnemann Medical College and Hospital.—H.	35	31	4	11.4	12	32	29	3	9.4	9	3	2	1	33.3	3	5	5	0	0.0	4
55	Jefferson Medical College	135	126	9	6.7	23	129	123	6	4.7	21	6	3	3	50.0	5	49	49	0	0.0	13
56	Temple University School of Medicine	25	21	4	16.0	6	25	21	4	16.0	6	0	0	0	0.0	0	1	1	0	0.0	1
57	University of Pennsylvania School of Medicine	134	131	3	2.2	25	121	120	1	0.8	22	13	11	2	15.4	9	22	22	0	0.0	8
58	University of Pittsburgh School of Medicine	34	33	1	2.9	5	31	31	0	0.0	3	3	2	1	33.3	2	8	8	0	0.0	1
59	Woman's Medical College of Pennsylvania	14	13	1	7.2	5	11	11	0	0.0	5	3	2	1	33.3	1	0	0	0	0.0	0
	SOUTH CAROLINA																				
60	Medical College of the State of South Carolina	32	32	0	0.0	4	30	30	0	0.0	4	2	2	0	0.0	2	28	28	0	0.0	3
	TENNESSEE																				
61	Meharry Medical College	109	86	23	20.4	20	95	81	14	14.7	20	13	5	8	61.5	7	85	77	8	9.4	19
62	University of Tennessee College of Medicine	32	29	3	9.4	10	28	27	1	3.6	8	4	2	2	50.0	4	25	25	0	0.0	6
63	University of West Tennessee Medical Department	6	1	5	83.3	3	4	1	3	75.0	2	2	0	2	100.0	2	0	0	0	0.0	0
64	Vanderbilt University School of Medicine	54	53	1	1.9	10	44	43	1	2.3	5	10	10	0	0.0	7	43	42	1	2.3	4
	TEXAS																				
65	Baylor University College of Medicine	22	20	2	9.1	3	22	20	2	9.1	3	0	0	0	0.0	0	18	17	1	5.6	2
66	University of Texas School of Medicine	42	41	1	2.4	3	41	41	0	0.0	2	1	0	1	100.0	1	41	41	0	0.0	2

H = Homeopathic; E = Eclectic; N = Nondescript.

NAME OF COLLEGE	Graduates of All Years					Graduates of 1919-1923					Graduates of 1918 and Previous					Graduates of 1923					Marginal Number
	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	Number Examined	Number Passed	Number Failed	Per Cent. Failed	Number of States	
VERMONT																					
University of Vermont College of Medicine	34	30	4	11.8	8	28	26	2	7.1	5	6	4	2	33.3	5	20	20	0	0.0	1	67
VIRGINIA																					
Medical College of Virginia	56	55	1	1.8	7	51	51	0	0.0	6	5	4	1	20.0	5	45	45	0	0.0	3	68
University of Virginia Department of Medicine	30	30	0	0.0	7	29	29	0	0.0	7	1	1	0	0.0	1	18	18	0	0.0	4	69
WISCONSIN																					
Marquette University School of Medicine	29	28	1	3.4	3	29	28	1	3.4	3	0	0	0	0.0	0	26	26	0	0.0	1	70
PHILIPPINE ISLANDS																					
University of the Philippines, Manila	20	16	4	20.0	1	20	16	4	20.0	1	0	0	0	0.0	0	20	16	4	20.0	7	71
University of St. Thomas, Manila	112	30	82	73.2	3	109	29	80	73.4	1	3	1	2	66.7	2	64	24	40	62.5	1	72
CANADA																					
Dalhousie University Faculty of Medicine	1	1	0	0.0	1	0	0	0	0.0	0	1	1	0	0.0	1	0	0	0	0.0	0	73
Laval University Faculty of Medicine	5	3	2	40.0	4	4	2	2	50.0	3	1	1	0	0.0	1	2	1	1	50.0	2	74
McGill University Faculty of Medicine	53	45	8	15.1	18	42	35	7	16.7	16	11	10	1	9.1	7	9	9	0	0.0	7	75
Queen's University Faculty of Medicine	12	9	3	25.0	4	8	5	3	37.5	3	4	4	0	0.0	2	0	0	0	0.0	0	76
University of Manitoba Faculty of Medicine	8	7	1	12.5	5	6	6	0	0.0	4	2	1	1	50.0	2	0	0	0	0.0	0	77
University of Montreal Medical Faculty	1	1	0	0.0	1	1	1	0	0.0	1	0	0	0	0.0	0	0	0	0	0.0	0	78
University of Toronto Faculty of Medicine	58	56	2	3.4	15	42	40	2	4.8	11	16	16	0	0.0	10	5	5	0	0.0	3	79
University of Western Ontario Medical School	2	1	1	50.0	2	0	0	0	0.0	0	2	1	1	50.0	2	0	0	0	0.0	0	80
Foreign Colleges	371	206	165	44.5	31	165	87	78	47.3	26	206	119	87	42.2	27	4	3	1	25.0	4	81
Miscellaneous Medical Colleges	161	81	80	49.7	31	10	6	4	40.0	7	151	75	76	50.3	31	0	0	0	0.0	0	82
Undergraduates and Osteopaths	58	38	20	34.5	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	83
Totals by States	4698	.....	.....	.....	.....	3985	.....	.....	.....	.....	655	.....	.....	.....	.....	2727	.....	.....	.....	.....	84
Totals — Examined — Passed	.....	3998	.....	.....	.....	.....	3554	.....	.....	.....	.....	406	.....	.....	.....	.....	2564	.....	.....	.....	85
Totals — Examined — Failed	.....	.....	700	.....	.....	.....	.....	431	.....	.....	.....	.....	249	.....	.....	.....	.....	163	.....	.....	86
Percentage of Failures	.....	.....	.....	14.9	.....	.....	.....	.....	10.8	.....	.....	.....	.....	38.0	.....	.....	.....	.....	6.0	.....	87

H = Homeopathic; E = Eclectic; N = Nondescript.

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candidates who have to undergo examination will diminish[2] as state licensing boards extend the provision for reciprocity, or for the endorsement, without further examination, of licenses granted by other states where a physician's qualifications are otherwise satisfactory. As a rule, the states which have limited or no reciprocal relations with other states (Florida, Massachusetts and New York—see Table G) examined the largest numbers of old practitioners.

GRADUATES OF 1923 EXAMINED DURING 1923

Table C also gives the results for the graduates of 1923 who were examined during the year by the state boards and shows that 2,727, or 58.0 per cent., of all candidates examined during the year graduated in 1923, including 16 who graduated from Canadian medical colleges. Educational statistics show that the medical colleges of the United States graduated 3,120 students last year; therefore, 87.4 per cent. of all graduates of 1923 took examinations for license during that year. In some of the states, graduates in medicine are allowed to serve as hospital interns without first becoming licensed practitioners, which accounts for some of the remaining 12.6 per cent. Of the 2,727 graduates of 1923 examined 163, or 6.0 per cent., failed, as compared with 3.1 per cent. in 1922, 3.7 per cent. in 1921, 7.2 per cent. in 1920, and 4.2 per cent. in 1919.

NONRECOGNITION OF MEDICAL COLLEGES

Table D shows for each college, from official reports, the states in which its diplomas are not given full recognition. Nonrecognition is expressed by different terms in different states. Some boards list colleges as "not in good standing"; some give them as "not reputable"; in New York full recognition is given only to colleges which are "registered," and in Michigan, colleges are divided into groups, only those of Group 1 having full recognition. Table D also shows the latest rating given to each college by the Council on Medical Education and Hospitals.

From the point of view of the student who may be selecting a medical college, the facts in Table D are of extreme importance. There are 66, or 82.5 per cent. of all medical colleges, which have complete recognition in all states. There are 2 others for which the few instances of nonrecognition are due to certain technicalities in state board requirements. If the student gets his medical training in one of the remaining 12 colleges, however, he will find on graduation that in from 7 to 49 states he cannot secure a license to practice.

Without the information published in Table D, these state board statistics would be not only incomplete—they would be actually misleading. For example, 65 graduates of the Kansas City College of Medicine and Surgery were examined in 1923, and of these, 55 passed and 10, or 15.4 per cent., failed. Note, however, that all these candidates were examined in six states, while graduates of this school are reported as not admitted to the examinations for the license to practice in 44 states!

During the eleven years that Table D has been published, the percentages of fully recognized colleges were respectively, 29.0, 32.3, 43.7, 65.6, 57.3, 61.3, 67.8, 71.6, 75.3 and 82.5. This indicates an improvement in the medical colleges. Of the 50 states—counting in Alaska and the District of Columbia—47 state licensing boards, to some extent at least, are now utilizing their legal power to refuse recognition to medical colleges which do not meet the requirements in the respective states. In the other three states, however (and by the sectarian boards in Arkansas and Connecticut), either the boards do not have the authority to enforce reasonable standards, or they are not making use of it.

TABLE 1.—*Recognition of Medical Colleges (Based on Table D.)*

	No. of Colleges
Recognized by all state boards	66
Not recognized by 1 or 2 state boards	2
Not recognized by 7 to 18 state boards	6
Not recognized by 46 to 49 state boards	6
Total	80

Arizona reports five colleges not recognized, Missouri reports three, and Massachusetts reports one, while the District of Columbia does not report any as not recognized. All other states report from 6 to 12 colleges as unrecognized. It is evident that if the graduates of low standard medical colleges are not eligible for license in the majority of states, they will flock to the few which still grant such recognition. The following states, therefore, Arkansas (Eclectic Board), Connecticut (Eclectic Board), Massachusetts and the District of Columbia will remain the dumping ground for the output

2. See Table 2 on page 1354.

(CONTINUED ON PAGE 1354)

TABLE D—RECOGNITION OF MEDICAL COLLEGES

This table, based on official reports, shows in what states diplomas granted by certain medical colleges are not recognized as an acceptable qualification for the license to practice medicine.

Colleges marked (x) have been reported as not recognized by the states in the columns of which the letter appears

| Marginal Number | COLLEGE | Classification by Council on Medical Education† | 1 Alabama | 2 Alaska | 3 Arizona | 4 Arkansas | 5 California | 6 Colorado | 7 Connecticut | 8 Delaware | 9 Dist. of Columbia | 10 Florida | 11 Georgia | 12 Idaho | 13 Illinois | 14 Indiana | 15 Iowa | 16 Kansas | 17 Kentucky | 18 Louisiana | 19 Maine | 20 Maryland | 21 Massachusetts | 22 Michigan | 23 Minnesota | 24 Mississippi | 25 Missouri | 26 Montana | 27 Nebraska | 28 Nevada | 29 New Hampshire | 30 New Jersey | 31 New Mexico | 32 New York | 33 North Carolina | 34 North Dakota | 35 Ohio | 36 Oklahoma | 37 Oregon | 38 Pennsylvania | 39 Rhode Island | 40 South Carolina | 41 South Dakota | 42 Tennessee | 43 Texas | 44 Utah | 45 Vermont | 46 Virginia | 47 Washington | 48 West Virginia | 49 Wisconsin | 50 Wyoming | Reported Non-Recognition by State Licensing Boards: No. of State Boards reporting full recognition | No. of State Boards reporting college not recognized | Percentage of State Boards reporting full recognition | Marginal Number |
|---|---|---

| | | |

(CONTINUED FROM PAGE 1351)

of low grade medical colleges until the licensing boards obtain and exercise the needed authority to bar them.

It is reported that no examinations were held during the last few years by the Arkansas Homeopathic Board. There are now only two homeopathic colleges existing in the United States, neither of them being near Arkansas.

The Arkansas eclectic board still examines the graduates of the Kansas City College of Medicine and Surgery, a nominally eclectic affair which is reported not recognized in 46 states. This board, however, is not authorized to examine graduates of other than eclectic colleges. In Connecticut during 1923 the board of eclectic medical examiners held only one examination, prior to the investigation by the Special Grand Jury, and examined 18 applicants, all of whom passed, and of whom 16 were graduates of eclectic colleges. The other two were graduates, respectively, of a regular and a nondescript medical school which were not recognized by the regular board of medical examiners. The eclectic board also certified for licensure 10 physicians, 9 of whom were graduates of Class C colleges, by the endorsement of licenses issued in other states, mostly in Arkansas. One of these applied to the Connecticut State Board of Health for his license but it was refused. The others did not apply.

STUDY OF TOTALS AND PERCENTAGES

A study of totals and percentages (see Table 2) as compared with previous years is of interest. The number 4,698 examined in 1923 was 705 more than in 1922, but 109 less than in 1921. The fluctuations in the numbers examined indicate similar fluctuations in the numbers of graduates in the various years. Indications are that the totals will be gradually increased during the next five years.

TABLE 2.—*Results for This and Previous Years*

Year	All Candidates Examined				Recent Graduates		Older Graduates		Nondescript		Registered without Written Examination	Total Registered
	Examined	Passed	Failed	Percentage Failed	Examined	Percentage Failed	Examined	Percentage Failed	Examined	Percentage Failed		
1904	7035	5672	1363	19.3	4773	14.1	579	29.7	515	52.6	999	6671
1905	7170	5680	1490	20.8	6054	16.2	690	37.7	472	61.9	894	6074
1906	8035	6368	1667	20.7	6250	16.4	709	27.1	703	51.3	1497	7865
1907	7271	5723	1548	21.3	5922	15.1	675	27.7	674	69.6	1426	7149
1908	7770	6084	1686	21.7	6477	17.8	796	31.5	494	56.8	1276	7360
1909	7287	5857	1430	19.6	5891	15.4	968	30.0	438	54.1	1373	7230
1910	7004	5712	1292	18.4	5678	14.9	973	29.1	353	45.6	1640	7352
1911	6960	5578	1382	19.9	5685	17.2	945	29.4	330	38.5	1246	6824
1912	6879	5466	1413	20.5	5770	18.6	856	29.2	253	34.8	1257	6723
1913	6435	5236	1199	18.6	5390	16.5	225	32.1	251	37.8	1266	6501
1914	5570	4370	1200	21.6	4549	17.6	728	30.0	293	61.4	1427	5797
1915	5313	4486	827	15.6	4627	13.2	621	29.3	65	49.2	1386	5872
1916	4850	4123	727	15.0	4283	12.7	567	32.1	.....	.....	1338	5461
1917	4730	4061	669	14.1	4015	10.1	564	32.6	.....	.....	1362	5428
1918	3637	3154	483	13.3	2964	9.3	479	30.5	.....	.....	1031	4185
1919	4736	4060	676	14.3	3904	10.5	766	30.8	66	47.0	2321	6584
1920	4787	4053	734	15.3	3984	11.5	738	33.2	65	50.8	2304	6557
1921	4807	4211	596	12.4	4046	7.8	673	37.3	88	33.0	2137	6348
1922	3993	3501	492	12.3	3255	7.4	563	33.3	83	49.7	1066	5497
1923	4698	3998	700	14.9	3985	10.8	655	38.0	58	34.5	2323	6321

Statistics regarding physicians licensed in the various states by reciprocity and by other methods are given in Tables G, H, I, J, K and L. By all methods—examination, reciprocity under exemption, etc.—6,321 physicians were licensed during 1923, 824 more than in 1922, 27 less than in 1921, 236 less than in 1920, 263 less than in 1919, and 1,544 less than in 1906, when 7,865 physicians were licensed.

TABLE E.—*Colleges Having Fifty or More Examined*

COLLEGES	Graduates of All Years					Graduates of 1919-1923					Graduates of 1918 and Previous					Graduates of 1923					Marginal No., Table A
	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	No. Examined	No. Passed	No. Failed	Per Cent. Failed	No. of States	
Rush Medical College	152	148	4	2.6	19	145	141	2	1.4	18	9	7	2	22.2	6	118	116	2	1.7	12	16
University of Michigan Medical School	146	146	0	0.0	13	141	141	0	0.0	11	5	5	0	0.0	4	117	117	0	0.0	4	31
Jefferson Medical College	135	126	9	6.7	23	129	123	6	4.7	21	6	3	3	50.0	5	49	49	0	0.0	13	55
Harvard University Medical School	134	130	4	3.0	24	123	122	1	0.8	21	11	8	3	27.3	9	59	59	0	0.0	11	27
University of Pennsylvania School of Medicine	134	131	3	2.2	25	121	120	1	0.8	22	13	11	2	15.4	9	22	22	0	0.0	8	57
Columbia University College of Phys. & Surgs.	112	102	10	8.9	10	105	96	9	8.6	6	7	6	1	14.3	7	77	72	5	6.5	2	41
Northwestern University Medical School	109	104	5	4.6	20	103	98	5	4.9	17	6	6	0	0.0	5	90	86	4	4.4	12	15
Meharry Medical College	108	86	22	20.4	20	95	81	14	14.7	20	13	5	8	61.5	7	85	77	8	9.4	18	61
Tulane University of Louisiana School of Med.	103	100	3	2.9	13	99	97	2	2.0	12	4	3	1	25.0	3	65	65	0	0.0	8	22
Long Island College Hospital	102	92	11	10.7	5	99	88	11	11.1	3	4	4	0	0.0	3	88	80	8	9.1	1	43
Tufts College Medical School	97	87	10	10.3	12	89	80	8	9.1	11	9	7	2	22.2	7	54	50	4	7.4	4	29
University of Illinois College of Medicine	95	88	7	7.4	9	88	84	4	4.6	8	7	4	3	42.9	4	83	82	3	3.5	6	17
University & Bellevue Hospital Medical College	93	91	2	2.1	9	90	88	2	2.2	6	3	3	0	0.0	3	89	81	1	1.2	2	46
St. Louis College of Physicians & Surgeons	91	39	52	57.0	12	81	36	45	55.6	10	10	2	8	80.0	4	23	7	16	69.6	6	35
St. Louis University School of Medicine	94	93	1	1.1	14	92	91	1	1.1	14	2	2	0	0.0	2	88	85	1	1.2	11	36
Johns Hopkins University Medical Dept.	86	84	2	2.3	18	78	76	2	2.6	16	8	8	0	0.0	6	59	59	0	0.0	5	23
Emory University School of Medicine	75	70	5	6.7	10	73	68	5	6.8	10	2	2	0	0.0	1	69	69	0	0.0	6	10
Cornell University Medical College	75	71	4	5.3	6	74	70	4	5.4	6	1	1	0	0.0	1	60	57	3	5.0	2	42
University of Md. Sch. of Med. & Coll. of P. & S.	71	69	2	2.8	11	65	64	1	1.5	9	6	5	1	16.7	5	47	47	0	0.0	6	24
University of Cincinnati College of Medicine	71	71	0	0.0	10	69	69	0	0.0	8	2	2	0	0.0	2	68	68	0	0.0	5	50
University of Minnesota Medical School	65	65	0	0.0	8	64	64	0	0.0	7	1	1	0	0.0	1	34	34	0	0.0	2	32
Kansas City College of Med. & Surg.—N.	65	55	10	15.4	6	65	55	10	15.4	6	0	0	0	0.0	0	45	36	4	9.3	3	33
University of Nebraska College of Medicine	62	61	1	1.6	5	61	61	0	0.0	5	1	0	1	100.0	1	52	52	0	0.0	3	39
Indiana University School of Medicine	61	61	0	0.0	5	60	60	0	0.0	4	1	1	0	0.0	1	58	58	0	0.0	2	18
Medical College of Virginia	56	55	1	1.8	7	51	51	0	0.0	6	5	4	1	20.0	5	45	45	0	0.0	3	66
State University of Iowa College of Medicine	54	53	1	1.9	9	52	52	0	0.0	7	2	1	1	50.0	3	44	44	0	0.0	1	19
Washington University School of Medicine	54	52	2	3.7	10	48	48	0	0.0	9	6	4	2	33.3	3	38	38	0	0.0	5	37
Vanderbilt University School of Medicine	54	53	1	1.9	10	44	43	1	2.3	5	10	10	0	0.0	7	43	42	1	2.3	4	64
Ohio State University College of Medicine	51	50	1	2.0	4	51	50	1	2.0	4	0	0	0	0.0	0	46	46	0	0.0	1	49
University of Buffalo Medical Department	50	46	4	8.0	2	49	45	4	8.2	1	1	1	0	0.0	1	48	44	4	8.3	1	47
Totals	2656	2478	178	6.7	....	2501	2362	139	5.5	....	155	116	39	25.2	....	1831	1767	64	3.5		

This table is interesting, since it gives data relating to the 30 medical colleges having over fifty graduates examined, arranged according to the number examined. This allows of comparison between colleges having classes of nearly equal size. Rush Medical College had the largest number of graduates (152) examined last year. The first place was held by Jefferson Medical College from 1919 to 1921; by the Chicago College of Medicine and Surgery from 1913 to 1918, inclusive, by the University of Illinois College of Medicine in 1912. The higher place from the standpoint of the numbers examined, however, does not always mean the higher rank from the standpoint of scholarship as evidenced by the percentages of failures. The five highest failure percentages are for the St. Louis College of Physicians and Surgeons, 57.0; Meharry Medical College, 20.4; Kansas City College of Medicine and Surgery, 15.4; Long Island College Hospital, 10.7, and Tufts College Medical School, 10.3.

Of the thirty colleges 25 had failure percentages of less than 10.

The average percentage of failures for these larger colleges for graduates of 1918 and previous years was 25.2; for graduates of 1919 to 1923, inclusive (recent graduates), 5.5; for graduates of 1923, 3.5, and for graduates of all years, 6.7. Of the 3,836 graduates of the 70 colleges in the United States which had graduates examined by the state boards in 1923, these larger colleges (42.9 per cent. of the 70 schools) furnished 2,656, or 69.2 per cent. of the graduates examined.

STUDY OF LARGER COLLEGES

Table E is also based on the three larger tables, and gives the results of state board examinations as they affect the thirty larger medical colleges. Although these colleges represent 42.9 per cent. of the seventy medical colleges in the United States having graduates examined in 1923, they furnished 69.2 per cent. of all candidates for license coming from medical schools in the United States. The table shows also that the graduating of large classes by a medical college does not insure excellence in teaching, since five of these have high failure percentages.

TABLE F.—*Physicians Examined by State Boards 1919 to 1923, Inclusive*

STATES	1919		1920		1921		1922		1923		Totals			
	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Registered	Rejected	Examined	Registered	Rejected	Percentage Rejected
Alabama	23	12	34	2	37	3	31	1	36	2	181	161	20	11.0
Arizona	48	5	33	14	6	10	7	2	6	2	133	100	33	24.8
Arkansas	70	7	48	28	46	6	30	1	50	4	290	244	46	12.4
California	109	56	150	24	184	56	208	67	185	69	1117	836	281	25.2
Colorado	57	16	56	46	44	16	32	24	51	19	371	240	131	35.3
Connecticut	94	24	97	26	145	27	114	26	77	19	649	527	122	18.7
Delaware	19	1	6	3	8	0	17	0	5	0	59	55	4	6.8
Dist. of Columbia	51	9	61	5	42	11	54	7	57	6	300	265	35	11.7
Florida	64	17	72	18	50	24	56	21	72	28	422	314	108	25.6
Georgia	60	5	70	6	68	0	68	1	80	1	359	340	13	3.6
Idaho	31	0	27	2	14	0	11	0	9	0	94	92	2	2.1
Illinois	475	96	404	60	384	61	286	68	350	105	2259	1868	390	17.5
Indiana	34	0	64	0	65	0	35	1	67	0	266	265	1	0.4
Iowa	78	4	76	2	61	0	49	0	55	0	323	317	6	1.9
Kansas	33	3	32	2	46	1	28	5	31	0	180	169	11	6.1
Kentucky	31	7	30	4	54	5	37	4	38	3	213	190	23	10.8
Louisiana	80	6	81	2	74	7	56	4	66	0	375	356	19	5.1
Maine	43	3	24	1	35	2	28	0	29	0	164	158	6	3.7
Maryland	145	11	107	11	123	7	74	3	91	5	577	540	37	6.4
Massachusetts	205	41	217	69	225	98	244	56	219	62	1581	1210	321	21.0
Michigan	52	0	161	2	176	2	119	4	202	2	720	710	10	1.4
Minnesota	98	0	90	4	120	1	107	3	83	0	506	498	8	1.6
Mississippi	18	3	30	1	15	2	27	2	22	4	124	112	12	9.7
Missouri	136	1	117	5	132	12	107	16	145	29	700	637	63	9.0
Montana	26	12	25	3	17	2	11	2	17	1	116	96	20	17.2
Nebraska	102	5	27	0	76	3	42	0	94	0	349	341	8	2.3
Nevada	13	0	14	2	3	1	13	1	7	2	56	50	6	10.7
New Hampshire	5	0	6	1	4	1	12	0	4	0	33	31	2	6.1
New Jersey	61	1	38	1	26	3	25	10	52	14	231	202	29	12.6
New Mexico	2	0	3	0	1	0	0	0	0	0	6	6	0	0.0
New York	627	189	709	246	806	128	599	80	675	159	4206	3410	796	18.9
North Carolina	59	9	70	3	51	4	37	8	65	5	311	282	29	9.3
North Dakota	6	4	13	3	6	5	6	2	11	1	57	42	15	26.3
Ohio	156	8	179	5	207	14	183	6	222	4	984	947	37	3.9
Oklahoma	34	0	14	0	38	1	20	2	27	3	139	133	6	4.3
Oregon	39	3	61	19	31	12	23	7	19	4	218	173	45	20.9
Pennsylvania	213	28	288	41	306	34	265	18	215	20	1425	1284	141	9.9
Rhode Island	20	5	25	5	27	1	27	0	26	1	137	125	12	8.8
South Carolina	45	14	32	8	28	2	24	1	40	0	195	170	25	12.8
South Dakota	20	1	38	2	19	1	19	0	21	0	121	117	4	3.3
Tennessee	90	7	82	0	102	0	65	1	100	0	458	445	8	1.8
Texas	80	3	106	0	77	1	77	0	75	0	425	421	4	0.9
Utah	29	0	18	1	17	1	11	3	10	1	91	85	6	6.6
Vermont	22	0	18	0	31	0	19	0	24	0	114	114	0	0.0
Virginia	65	12	55	4	61	4	55	0	71	2	329	307	22	6.7
Washington	63	10	24	5	20	7	6	6	11	0	152	124	28	18.4
West Virginia	35	15	41	10	37	11	42	9	47	4	251	202	49	19.5
Wisconsin	34	0	46	1	59	6	60	3	59	0	268	258	10	3.7
Wyoming	19	8	9	0	4	1	8	3	3	1	56	43	13	23.2
U. S. Territories and Possessions	27	18	33	21	42	7	28	4	80	125	385	210	175	45.5
Totals	4,736		4,787		4,807		3,993		4,698		23,021			
Registered	4,060		4,053		4,211		3,501		3,998		19,823			
Rejected	676		734		596		492		700		3,198			
Per Cent. Rejected	14.3		15.4		12.4		12.3		14.9		13.9			

This table gives the number of physicians who passed and failed in the examinations in each state during the last five years. The last four columns give the totals and the percentage rejected by each state. Four states registered over 1,000 candidates by examination in the last five years, these being New York, Illinois, Pennsylvania and Massachusetts. Altogether 19,823 physicians were registered by examination in the five years, with an average of 3,964 each year.

The five states having the highest percentage of failures in the five years were Colorado 35.3, North Dakota 26.3, Florida 25.6, California 25.2, and Arizona 24.8. Colorado, Massachusetts and Texas admitted osteopaths to their examinations for physicians and surgeons and would be expected to have high percentages. On the other hand, in many states, boards refuse to recognise low-grade colleges (see Table D) and thereby eliminate many inferior candidates prior to the examination and as a result, the percentages of failures at examinations in these states are lower than otherwise they would be. For example, Ohio rejected only 3.9 per cent. of those who took its examinations, but refused to admit graduates of seven inferior medical colleges to its examinations. The lowest failure precentages were in New Mexico, 0.0; Indiana, 0.4; Texas, 0.9; Michigan, 1.4, and Minnesota, 1.6.

TOTALS EXAMINED IN FIVE YEARS

Table F shows the number registered and the number rejected in each state for each of the past five years. A comparison of this table with the statistics in the last educational number of THE JOURNAL (Aug. 18, 1923, p. 556, Table 11) shows—what would be expected—that the states having the largest numbers of medical graduates examined the largest number of physicians. New York leads, having examined 4,206 candidates in five years, followed by Illinois with 2,259. Altogether 23,021 physicians were examined by state boards in five years, an average of 4,604 each year. In the last five years, 3,198 candidates failed, or 13.9 per cent.

TABLE G.—*Registration by State Boards During the Year 1923*

STATES	By Examination			By Reciprocity	Without Written Examination or Under Exemption	Total Registered
	Graduates, 1919-1923	Graduates, 1918 and Previous	Nongraduates and graduates of Nondescript Colleges			
Alabama	34	2	....	17	....	53
Arizona	6	0	....	21	....	27
Arkansas	36	14	....	29	....	79
California	161	24	....	507	....	692
Colorado	38	3	10	51	....	102
Connecticut	71	6	....	11	13	101
Delaware	5	0	....	7	....	12
District of Columbia	49	8	....	22	....	79
Florida	25	47	....	0	....	72
Georgia	78	4	....	15	....	95
Idaho	3	6	....	3	....	12
Illinois	326	24	....	77	....	427
Indiana	65	2	....	75	....	142
Iowa	48	7	....	17	....	70
Kansas	29	2	....	71	....	102
Kentucky	35	2	1	28	1	67
Louisiana	61	5	....	10	....	76
Maine	24	4	....	4	....	32
Maryland	85	6	....	26	5	122
Massachusetts	160	33	26	2	....	221
Michigan	191	11	....	80	....	282
Minnesota	79	4	....	64	....	147
Mississippi	22	0	....	23	....	45
Missouri	142	3	....	71	....	216
Montana	11	6	....	3	....	20
Nebraska	94	0	....	24	....	118
Nevada	5	2	....	13	....	20
New Hampshire	2	2	....	6	....	10
New Jersey	37	15	....	156	....	208
New Mexico	0	0	....	22	9	31
New York	609	66	....	62	17	754
North Carolina	61	4	....	46	....	111
North Dakota	11	0	....	5	....	16
Ohio	209	13	....	85	....	307
Oklahoma	25	2	....	49	....	76
Oregon	19	0	....	25	....	44
Pennsylvania	199	16	....	41	....	256
Rhode Island	21	5	....	0	....	26
South Carolina	35	5	....	5	....	45
South Dakota	9	12	....	7	....	28
Tennessee	99	1	....	14	....	114
Texas	71	3	1	126	....	201
Utah	10	0	....	14	....	24
Vermont	21	3	....	6	....	30
Virginia	64	7	....	27	....	98
Washington	8	3	....	63	....	74
West Virginia	42	5	....	59	....	106
Wisconsin	52	7	....	45	....	104
Wyoming	1	2	....	10	....	13
U. S. Terr. and Poss.	70	10	....	0	134	214
Totals	3554	406	38	2144	179	6321

This table shows the total number registered during 1923 in each state by examination, by reciprocity, and by endorsement of credentials. The first three columns show those registered by examination, including recent graduates, older practitioners and nongraduates or graduates of nondescript colleges—including also osteopaths who were granted licenses as physicians and surgeons. The fourth column shows the number registered by the endorsement of licenses issued by other states (reciprocity) and of certificates of the Army, Navy, Public Health Service, and National Board of Medical Examiners. The fifth column shows those licensed under various exemption clauses in the practice acts, such as because of high professional standing or (in New Mexico) by the endorsement of diplomas of recognized medical schools. Massachusetts licensed as physicians 26 out of 36 graduates of osteopathic colleges who took the examination. Colorado so licensed 10 out of 18 osteopaths, and Texas licensed as physicians and surgeons one osteopath by examination and 10 by reciprocity.

The last column shows the total number of physicians registered by all methods in each state during 1923. Four states registered over 300 each, these being in New York, 754; California, 692; Illinois, 427, and Ohio, 307. Seventeen states registered less than fifty physicians each. The total registration by all methods was 6,321, an increase of 824 over the total registration in 1922.

TABLE H.—*Registration by State Boards for Five Years*

STATE	1919	1920	1921	1922	1923	Totals
Alabama	55	54	51	43	53	256
Arizona	48	33	6	37	27	151
Arkansas	130	97	97	66	79	469
California	445	651	581	630	692	2,999
Colorado	141	138	123	119	102	623
Connecticut	107	108	164	150	101	630
Delaware	28	7	14	22	12	83
District of Columbia	66	77	57	69	79	348
Florida	64	72	50	56	72	314
Georgia	111	114	86	84	95	490
Idaho	49	41	33	22	12	157
Illinois	568	482	390	355	427	2,211
Indiana	65	158	102	69	142	536
Iowa	149	132	126	70	70	547
Kansas	89	96	99	86	102	472
Kentucky	68	51	94	69	67	349
Louisiana	98	98	85	64	76	416
Maine	51	30	41	34	32	188
Maryland	179	164	160	93	122	718
Massachusetts	305	217	225	244	221	1,212
Michigan	182	287	248	202	282	1,201
Minnesota	179	174	215	200	147	915
Mississippi	46	47	34	43	45	215
Missouri	232	177	165	130	216	920
Montana	26	26	19	11	20	102
Nebraska	167	75	111	62	118	533
Nevada	22	31	6	24	20	103
New Hampshire	18	21	18	12	10	79
New Jersey	268	171	164	137	208	948
New Mexico	50	46	38	41	31	206
New York	711	779	879	748	754	3,871
North Carolina	82	114	101	66	111	474
North Dakota	18	28	14	14	16	90
Ohio	285	311	326	261	307	1,490
Oklahoma	116	71	108	78	76	449
Oregon	39	65	31	47	44	226
Pennsylvania	269	316	334	313	256	1,488
Rhode Island	20	25	27	27	26	125
South Carolina	45	41	40	30	45	201
South Dakota	20	49	24	22	28	143
Tennessee	123	83	102	65	114	487
Texas	275	271	195	178	201	1,120
Utah	54	32	29	27	24	166
Vermont	24	20	34	21	30	129
Virginia	127	85	82	80	98	472
Washington	105	127	156	59	74	523
West Virginia	76	95	74	82	106	433
Wisconsin	148	106	119	110	104	587
Wyoming	19	34	18	17	13	101
U. S. Possessions	27	35	42	28	214	346
Totals	6,584	6,567	6,348	5,497	6,321	31,307

This table shows the totals registered in each state during the last five years. Marked decreases are noteworthy in several states. Totals also are given for the entire five years. Seven states registered over a thousand physicians, the largest being New York with 3,871, followed by California with 2,999; Illinois with 2,211; Ohio with 1,490, and Pennsylvania with 1,488. The lowest number registered during the five years was in New Hampshire, where only 79 physicians were registered, followed by Delaware with 83 and North Dakota with 90.

TABLE I.—*Qualifications of Physicians Licensed in 1923*

Marginal Number	STATE	By Examination					By Reciprocity or Credentials					Totals Registered from Medical Colleges in Class				Grand Totals	Marginal Number
		Medical Colleges in Class				Totals	Medical Colleges in Class				Totals						
		A	B	C	Misc.		A	B	C	Misc.		A	B	C	Misc.		
1	Alabama	35	0	0	1	36	11	5	0	1	17	46	5	0	2	53	1
2	Arizona	5	0	1	0	6	10	1	0	10	21	15	1	1	10	27	2
3	Arkansas	10	3	30	7	50	14	5	6	4	29	24	8	36	11	79	3
4	California	170	3	1	11	185	280	53	16	140	5 07	450	56	17	160	692	4
5	Colorado	26	1	21	3	51	33	5	0	13	51	59	6	21	16	102	5
6	Connecticut	52	0	18	7	77	10	2	9	3	24	62	2	27	10	101	6
7	Delaware	3	2	0	0	5	6	0	0	1	7	9	2	0	1	12	7
8	District of Columbia	54	1	0	2	57	12	1	5	4	22	66	2	5	6	79	8
9	Florida	60	4	1	7	72	0	0	0	0	0	60	4	1	7	72	9
10	Georgia	77	2	1	0	80	10	2	1	2	15	87	4	2	2	95	10
11	Idaho	5	1	1	2	9	2	1	0	0	3	7	2	1	2	12	11
12	Illinois	286	15	24	25	350	55	12	1	9	77	341	27	25	34	427	12
13	Indiana	62	2	0	3	67	49	8	1	17	75	111	10	1	20	142	13
14	Iowa	48	0	0	5	53	16	1	0	0	17	64	1	0	5	70	14
15	Kansas	28	0	0	3	31	27	11	21	12	71	55	11	21	15	102	15
16	Kentucky	32	3	3	0	38	22	3	0	4	29	54	6	3	4	67	16
17	Louisiana	61	3	0	2	66	7	0	0	3	10	68	3	0	5	76	17
18	Maine	26	2	0	0	28	3	0	0	1	4	29	2	0	1	32	18
19	Maryland	84	3	0	4	91	25	2	0	4	31	100	5	0	8	122	19
20	Massachusetts	136	3	50	21	210	2	0	0	0	2	138	3	50	21	221	20
21	Michigan	183	2	0	17	202	55	8	1	16	80	238	10	1	33	282	21
22	Minnesota	78	0	0	5	83	60	2	0	2	64	138	2	0	7	147	22
23	Mississippi	22	0	0	0	22	13	4	0	6	23	35	4	0	6	45	23
24	Missouri	106	2	34	3	145	42	14	4	11	71	148	16	38	14	216	24
25	Montana	14	2	0	1	17	1	1	0	1	3	15	3	0	2	20	25
26	Nebraska	94	0	0	0	94	14	3	0	7	24	108	3	0	7	118	26
27	Nevada	1	0	3	3	7	4	3	3	3	13	5	3	6	6	20	27
28	New Hampshire	3	0	0	1	4	6	0	0	0	6	9	0	0	1	10	28
29	New Jersey	31	0	0	21	52	121	9	1	25	156	152	9	1	46	208	29
30	New Mexico	0	0	0	0	0	14	3	1	13	31	14	3	1	13	31	30
31	New York	588	35	0	52	675	60	4	1	14	79	648	39	1	66	754	31
32	North Carolina	63	1	1	0	65	23	12	1	10	46	86	13	2	10	111	32
33	North Dakota	8	3	0	0	11	5	0	0	0	5	13	3	0	0	16	33
34	Ohio	187	19	0	16	222	63	6	0	16	85	250	25	0	32	307	34
35	Oklahoma	25	1	0	1	27	22	10	4	12	49	47	11	4	14	76	35
36	Oregon	19	0	0	0	19	17	5	1	2	25	36	5	1	2	44	36
37	Pennsylvania	192	17	0	6	215	37	0	0	4	41	229	17	0	10	256	37
38	Rhode Island	25	0	0	1	26	0	0	0	0	0	25	0	0	1	26	38
39	South Carolina	36	2	1	1	40	3	2	0	0	5	39	4	1	1	45	39
40	South Dakota	16	0	0	5	21	7	0	0	0	7	23	0	0	5	28	40
41	Tennessee	99	1	0	0	100	11	0	0	3	14	110	1	0	3	114	41
42	Texas	68	0	1	6	75	68	19	17	22	126	136	19	18	28	201	42
43	Utah	10	0	0	0	10	13	0	0*	1	14	22	0	0	1	24	43
44	Vermont	22	0	0	2	24	4	0	0	2	6	26	0	0	4	30	44
45	Virginia	65	0	1	5	71	21	2	1	3	27	86	2	2	8	98	45
46	Washington	9	0	0	2	11	36	11	0	16	63	45	11	0	18	74	46
47	West Virginia	43	0	0	4	47	48	4	0	7	59	91	4	0	11	106	47
48	Wisconsin	32	2	0	4	59	35	6	3	1	45	87	9	3	5	104	48
49	Wyoming	2	1	0	0	3	6	2	0	2	10	8	3	0	2	13	49
50	U. S. Territories and Possessions	22	1	0	57	80	0	0	0	134	134	22	1	0	191	214	50
	Totals	3343	138	201	316	3998	1412	242	98	571	2323	4755	380	299	887	6321	

Of the 26 Class C graduates licensed in Arkansas, 1 was registered by the Regular Board and 25 were registered by the Eclectic Board. The Arkansas Homeopathic Board reported no candidates licensed either by examination or by reciprocity.

Of the 50 graduates of Class C colleges licensed in Massachusetts, 26 were graduates of osteopathic colleges—institutions not generally recognized as medical colleges. In Colorado 10 graduates of osteopathic colleges were registered.

Of the 101 physicians licensed in Connecticut, the Regular Board registered 62 Class A and 10 miscellaneous graduates and the Homeopathic Board registered one Class C graduate, while the Eclectic Board registered 2 class B and 26 Class C graduates.

Illinois harbors the Chicago Medical School, a Class C medical college, not now recognized in the state; Massachusetts has two Class C colleges, The College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery, and does not have authority to refuse recognition to low grade institutions. Missouri has three Class C colleges, the Kansas City College of Medicine and Surgery, the Kansas City University of Physicians and Surgeons, and the St. Louis College of Physicians and Surgeons. These were refused recognition by the Missouri Board until they were forced to do so by an amendment to the medical practice law—an amendment that has recently been repealed. This accounts for the larger numbers of Class C graduates licensed in these states. Missouri registered 38 Class C graduates in 1923 as compared with 7 in 1922.

Texas does not recognize Class C medical schools, but, nevertheless, accepted 10 graduates of osteopathic colleges which are nothing more than medical schools of a still lower grade.

Ten states accepted Class C graduates through reciprocity where they did not license any by examination. Kansas so registered 21; District of Columbia 5; Oklahoma 4, and Wisconsin 3. Although there were 39 Class C graduates licensed in states which did not register any by examination. On the whole 201 Class C graduates were licensed by examination, and 98 through reciprocity, a total of 299.

TOTAL REGISTRATION IN 1923

The tables thus far described have referred only to the results of examinations and to those registered on that basis. Table G, however, shows the total number who received licenses in each state, including those registered by examination, by reciprocity and under various exemption clauses. Altogether 6,321 physicians were registered by all methods during 1923, as compared with 5,497 in 1922, 6,348 in 1921, 6,557 in 1920, 6,584 in 1919, and 4,185 in 1918. The total registered in 1918—4,185—was the lowest number registered in any year since the publication of these statistics was begun, owing undoubtedly to the war. In 1919 the total increased to 6,584 and was the largest number appearing for examination in any year since 1912.

Over 100 were registered by all methods in twenty-two states; over 200 in eleven and over 300 in four, the largest numbers being 754 in New York, 692 in California, 427 in Illinois, and 307 in Ohio. Of those licensed in California, 507, or 73.3 per cent., were registered by the endorsement of licenses granted by other states. Several boards examined and licensed osteopaths as "physicians and surgeons." Massachusetts licensed 26, Texas 11, Colorado 10 and Wisconsin 1. Altogether 48 osteopaths—graduates of colleges decidedly inferior to the lowest grade medical schools—were licensed as physicians and surgeons.

TABLE 3.—*Source of Physicians Licensed in Seven Years*

Year	Medical Colleges in Class A		Class B		Class C		Miscellaneous and Foreign		Total
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	
1917	3,369	62.1	988	18.2	297	4.3	769	14.4	5,423
1918	2,456	58.7	682	16.3	342	8.2	705	16.8	4,185
1919	4,368	66.4	872	13.2	278	4.2	1,066	16.2	6,584
1920	4,597	70.2	631	9.6	275	4.2	1,054	16.0	6,557
1921	4,445	70.0	585	9.2	394	6.2	924	14.6	6,348
1922	3,999	72.8	444	8.1	316	5.7	738	13.4	5,497
1923	4,755	75.5	380	6.0	299	4.8	887	14.0	6,321

TOTAL REGISTRATION IN FIVE YEARS

Table H permits the reader to compare the registrations in each state for the last five years. In 1918 there was a decrease of 1,238 below 1917—due undoubtedly to the war. There was an increase of 2,399 in 1919 and slight decreases in 1920, 1921 and 1922.

In 1923, however, there was an increase of 834, the total registered being 6,321. The registrations in different states are interesting. Regardless of the general decreases in other states, during 1921 and 1922, Massachusetts had an increase, due evidently to the board's lack of authority to refuse recog-

TABLE J.—*Qualifications of Physicians Licensed by State Medical Boards in Six Years*

Mar. No.	STATE	Graduates of Class A Medical Schools							Graduates of Class B Medical Schools							Graduates of Class C Medical Schools							Grads. of Misc. Colleges 6 Yrs.	Total Registrations 6 Yrs.	Mar. No.
		1918	1919	1920	1921	1922	1923	Total	1918	1919	1920	1921	1922	1923	Total	1918	1919	1920	1921	1922	1923	Total			
1	Alabama	18	37	39	37	28	46	205	5	13	10	7	8	5	48	0	0	3	1	0	0	4	25	282	1
2	Arizona	11	18	21	4	16	15	80	4	10	3	0	2	1	20	1	2	0	0	1	1	5	79	184	2
3	Arkansas	12	31	36	47	24	24	174	32	34	16	9	15	8	114	26	33	26	21	18	36	160	102	550	3
4	California	67	154	266	235	349	459	1529	69	69	89	85	74	56	422	116	20	61	47	63	17	324	1,056	3,331	4
5	Colorado	30	56	57	54	62	59	318	7	13	7	9	8	6	50	24	33	33	25	14	21	150	212	730	5
6	Connecticut	37	89	93	60	64	62	414	4	7	4	7	6	2	30	1	2	1	66	74	27	171	61	676	6
7	Delaware	13	21	3	10	16	9	72	4	6	3	1	2	2	18	2	0	1	2	3	0	8	9	107	7
8	Dist. Columbia	37	55	66	45	59	66	328	1	2	4	0	0	2	9	0	2	1	1	4	5	13	39	389	8
9	Florida	3	31	33	28	42	60	197	2	5	5	5	3	4	24	0	3	3	1	1	1	9	105	335	9
10	Georgia	46	80	76	72	75	87	436	11	16	25	6	3	4	67	1	1	1	2	0	2	7	52	562	10
11	Idaho	11	25	31	12	15	7	101	1	5	2	5	3	2	18	2	2	0	0	1	1	6	63	188	11
12	Illinois	199	376	370	320	288	341	1894	161	129	54	21	23	27	415	11	38	33	45	10	25	162	132	2,603	12
13	Indiana	45	41	108	81	58	111	434	7	10	27	10	4	10	68	0	2	2	0	0	1	5	87	594	13
14	Iowa	48	104	108	97	64	64	480	13	19	15	15	2	1	65	5	4	2	6	0	0	17	64	626	14
15	Kansas	29	53	62	71	56	55	326	9	17	10	7	10	11	64	4	6	2	4	4	21	41	96	527	15
16	Kentucky	26	40	35	63	41	54	262	18	11	8	10	11	6	64	5	4	3	5	4	3	24	53	403	16
17	Louisiana	45	81	82	74	54	68	404	4	9	6	3	3	3	28	0	1	0	1	2	0	4	37	473	17
18	Maine	24	39	23	32	29	29	176	1	1	0	2	0	2	6	0	0	0	0	1	0	1	37	220	18
19	Maryland	57	154	130	140	81	109	671	3	11	3	10	2	5	34	2	4	3	4	1	0	14	72	791	19
20	Massachusetts	188	243	184	150	178	138	1084	8	14	9	4	2	3	40	9	19	19	42	51	50	190	116	1,430	20
21	Michigan	118	122	215	195	161	238	1049	3	19	24	26	7	10	89	1	0	1	2	3	1	8	200	1,246	21
22	Minnesota	82	140	146	190	178	138	874	5	16	14	7	6	2	50	0	1	1	0	0	0	2	83	1,009	22
23	Mississippi	12	32	34	27	25	35	165	0	6	4	4	8	4	26	0	1	1	0	3	0	5	34	230	23
24	Missouri	85	159	127	126	109	148	754	20	25	32	14	4	16	117	82	11	5	5	7	38	118	107	1,106	24
25	Montana	7	15	18	14	10	15	79	4	5	2	0	0	3	14	0	1	1	0	0	0	2	27	122	25
26	Nebraska	55	119	44	82	52	108	460	7	22	17	12	5	3	66	0	7	2	5	0	0	14	70	610	26
27	Nevada	3	7	10	1	5	5	31	3	2	2	0	3	3	13	0	5	6	0	5	6	22	54	120	27
28	New Hampshire	3	14	17	10	8	9	61	0	0	0	1	1	0	2	1	1	0	1	1	0	4	19	86	28
29	New Jersey	63	187	111	113	99	153	725	6	22	11	15	5	9	68	1	0	7	1	5	1	15	246	1,054	29
30	New Mexico	10	17	14	20	15	14	90	4	11	7	3	5	3	33	0	1	0	0	0	1	2	114	239	30
31	New York	417	600	675	758	630	648	3728	44	66	55	73	53	39	330	7	3	0	1	5	1	17	292	4,367	31
32	North Carolina	46	67	91	76	52	86	418	6	5	12	5	4	13	45	1	1	2	1	0	2	7	71	541	32
33	North Dakota	3	11	23	10	10	13	70	1	4	3	0	0	3	11	0	0	0	0	0	0	0	20	101	33
34	Ohio	120	194	228	189	188	250	1169	33	51	44	84	46	25	283	1	1	0	3	1	0	6	206	1,664	34
35	Oklahoma	10	28	35	50	32	47	202	26	45	13	10	15	11	120	5	5	5	26	0	4	51	149	522	35
36	Oregon	18	27	41	19	28	36	159	4	0	6	1	1	5	17	0	2	3	2	1	1	9	66	251	36
37	Pennsylvania	157	239	289	289	261	230	1464	7	18	16	16	22	17	96	0	1	1	14	5	0	21	79	1,660	37
38	Rhode Island	10	14	20	15	22	25	106	1	2	1	1	0	0	5	1	1	1	1	0	0	4	23	138	38
39	South Carolina	16	42	36	31	24	39	188	0	3	1	2	2	4	12	0	0	1	3	0	1	5	13	218	39
40	South Dakota	9	8	33	17	15	23	105	2	2	3	2	2	0	11	1	1	2	1	0	0	5	36	157	40
41	Tennessee	40	69	54	69	35	110	377	58	25	24	30	26	1	164	14	23	2	0	2	0	41	69	691	41
42	Texas	71	156	159	116	108	136	746	30	38	16	18	22	19	143	21	16	28	34	8	18	125	255	1,269	42
43	Utah	14	35	24	21	24	23	141	2	6	0	1	1	0	10	1	3	2	4	0	0	10	28	189	43
44	Vermont	24	20	20	29	21	26	140	0	2	0	0	0	0	2	0	0	0	0	0	0	0	12	154	44
45	Virginia	54	102	70	75	70	86	457	7	8	7	2	4	2	30	3	0	1	2	2	2	10	53	550	45
46	Washington	26	49	60	73	38	45	291	9	13	8	19	7	11	67	10	9	3	2	0	0	24	200	582	46
47	West Virginia	15	47	71	48	66	91	338	13	15	10	8	8	4	55	0	1	3	1	4	0	9	72	474	47
48	Wisconsin	27	97	78	87	88	87	404	9	21	13	12	5	0	60	0	2	1	9	1	3	16	76	625	48
49	Wyoming	2	12	17	10	5	8	54	8	11	6	1	3	3	32	12	5	1	1	5	0	24	35	145	49
50	U. S. Territories and Possessions	0	16	25	31	23	22	117	0	6	0	2	1	1	10	0	0	1	2	0	0	3	217	347	50
	Totals	2463	4308	4507	4445	3909	4755	24627	682	872	631	585	444	380	3594	341	278	275	394	316	299	1903	5373	35,497	

Of the 160 graduates of low grade colleges licensed in Arkansas during the last six years, 157 were licensed by the Eclectic Board of Medical Examiners and only 3 by the Regular Board.

During the six years 324 graduates of low grade colleges were licensed in California, including 175 osteopaths who were licensed as physicians. None was examined in 1923, however, since a separate osteopathic board was created.

Of the 150 Class C graduates licensed in Colorado, 83 were osteopaths who were licensed with the same privileges as physicians.

During the last three years the Connecticut Eclectic Board has certified for licensure, 167 graduates of Class C colleges, including graduates of regular and homeopathic colleges as well as eclectic.

Illinois, Massachusetts and Missouri are the homes of Class C medical colleges, which accounts for the large number of Class C graduates licensed in those states.

Note that in Missouri 38 Class C graduates were licensed in 1923, due to the amendment to the practice law removing the word "reputable" as referring to medical colleges. The amendment, however, has since been repealed.

Of the 125 graduates of low grade institutions licensed in Texas during the six years, only 13 were licensed by examination, while 112 were licensed by reciprocity. Of those licensed 56 were osteopaths who were licensed with full privileges as physicians.

TABLE K.—*Physicians Registered Through Reciprocity by State Examining Boards During 1923*

Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53
	Total Regis. by Recip. Es. State	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U.S.A., U.S.N., etc	Nat. Bd. Med. Ex.	U.S. Territories	Foreign
Alabama	17	..	..	..	..	..	..	..	1	..	2	..	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	5	1	..	..	..	1	..	1	..	..	..	..
Arizona	21	..	..	1	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	1	..	..	1	1	..	1	..	..	..	2	1	..	..	2	1	..	..	..	2	..	1	1	..	..	..	..	..	..	..	..	..	..
Arkansas	29	1	..	..	..	5	..	..	..	..	2	..	1	1	..	..	..	7	..	..	..	..	..	2	1	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	6	1	..	..	..	..	..	..	..	..	..	3
California	507	6	6	1	..	10	2	..	1	1	4	12	77	19	27	20	5	7	1	8	7	7	9	7	17	20	30	3	3	1	1	29	..	10	15	6	11	27	2	1	8	5	14	7	2	1	22	3	10	1	18	..	3	..
Colorado	51	..	..	1	1	..	..	..	2	..	..	..	8	1	..	4	..	..	..	1	..	1	5	1	6	..	5	..	..	..	1	..	..	..	2	1	..	2	..	..	2	3	2	..	..	..	..	1	..	..	..	..
Connecticut	11	..	..	7	..	..	..	..	..	1	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1
Delaware	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dist. of Col.	22	2	..	..	..	..	..	..	..	1	..	..	..	2	..	..	1	..	..	2	..	..	..	..	4	..	2	..	..	2	..	..	..	1	..	1	..	..	2	..	..	1	..	3	2	..	..	..	..	..	..	..	..
Georgia	15	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	2	..	..	..	..	..	..	2	..	2	..	..	..	..	2	..	..	..	..	2	..	..	1	1	..	..	..	..	..	..	..	..	..	..
Idaho	3	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Illinois	77	..	..	1	1	1	..	..	..	..	..	..	..	3	12	..	3	1	2	3	..	3	5	1	10	..	4	..	..	..	..	4	..	..	3	..	..	4	..	..	..	..	3	..	..	..	1	..	4	1	..	1	..
Indiana	75	..	..	..	..	..	..	..	..	..	..	3	..	20	..	2	..	17	..	1	..	..	4	..	1	..	..	1	..	..	..	..	1	..	..	4	..	..	3	..	..	7	5	..	1	1	..	2	2	..	..	..	..
Iowa	17	..	..	..	1	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	4	..	..	..	..	1	..	3	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..
Kansas	71	..	..	7	..	4	..	..	1	..	..	..	9	1	2	..	2	..	1	..	1	1	..	..	11	..	4	2	..	..	..	..	..	..	..	7	..	2	..	..	..	1	3	..	1	..	2	..	..	1	..	..	..
Kentucky	36	1	..	1	..	..	..	..	..	..	1	..	4	..	1	..	..	2	1	2	2	..	1	..	..	..	1	..	..	..	..	..	..	..	1	1	..	..	..	..	..	5	..	..	2	..	..	..	..	1	1	..
Louisiana	10	..	..	..	..	..	..	..	..	..	3	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..
Maine	4	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Maryland	26	..	..	..	1	..	..	..	8	..	3	..	1	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	3	..	1	..	1	..	..	4	..	..	..	..	..	..	..	..
Massachu'ts	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..
Michigan	80	..	..	1	..	..	1	..	1	..	3	..	22	4	4	2	2	..	1	3	1	..	2	..	7	..	2	..	..	..	..	7	1	..	5	..	..	4	..	..	..	1	1	..	..	..	3	2	..	..	..	..
Minnesota	64	..	..	..	5	..	..	..	..	..	..	..	11	3	7	2	..	1	2	1	..	4	..	..	3	..	2	..	..	..	..	3	2	4	..	..	..	4	..	..	..	1	1	..	..	3	1	..	1	..	..	..
Mississippi	33	5	..	2	1	..	..	..	..	..	..	..	2	..	1	..	1	5	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	3	..	..
Missouri	71	1	..	6	..	..	..	..	2	..	2	..	19	2	1	15	2	1	..	..	..	2	1	1	..	..	5	..	..	..	..	..	..	..	..	3	..	4	1	..	..	..	2	..	..	..	..	..	..	..	..	..
Montana	2	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
Nebraska	24	..	..	..	..	..	..	..	..	..	..	..	5	1	2	1	..	..	..	1	..	..	1	..	2	..	..	..	..	..	..	1	..	..	2	..	..	1	..	..	..	..	..	..	..	..	1	1	1	..	..	..
Nevada	13	..	..	2	2	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	1	..	1	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..
N. Hampsh'e	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..
New Jersey	156	..	1	..	..	1	..	1	..	1	..	..	3	..	..	..	2	1	2	5	5	1	2	..	..	..	1	..	..	..	..	77	3	1	2	1	..	33	..	1	..	1	..	9	..	..	..	..	..	..	2	..
New Mexico	22	..	..	1	..	3	..	..	..	..	1	..	8	..	..	..	..	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	4	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..
New York	62	1	..	..	6	..	3	2	1	..	..	..	1	2	..	..	1	2	..	2	12	..	..	..	1	..	..	..	..	6	..	..	..	..	6	1	..	8	..	1	..	..	..	1	1	..	..	..	..	..	..	..
No. Carolina	46	2	..	..	..	..	..	..	..	1	11	..	1	..	..	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1	..	..	..	3	..	1	..	8	..	..	1	..	1	..	..	..	..	..	..	..	3
No. Dakota	5	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	3	1	..	..
Ohio	86	..	..	..	1	..	..	..	1	..	..	..	7	6	3	1	7	1	..	5	..	10	4	2	4	..	3	..	..	..	..	9	..	..	..	..	..	6	..	..	..	3	..	1	5	1	3	1	1	..	..	..
Oklahoma	49	1	..	9	..	..	..	..	..	..	3	..	1	1	1	2	1	1	1	..	..	..	..	..	9	..	5	..	..	..	..	..	..	..	..	..	..	..	1	..	..	5	5	..	..	1	1	..	..	..	..	1
Oregon	25	1	..	..	2	..	..	..	..	..	..	4	5	..	1	..	..	..	..	..	2	..	1	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	4	..	1	..	..	..	..	..	2
Penns'vania	41	..	..	..	..	..	..	2	..	..	..	..	2	..	1	..	..	..	..	4	..	1	..	..	2	..	..	..	..	..	..	4	..	1	2	..	..	..	..	..	..	..	2	..	2	1	1	..	..	6	11	..	..
So. Carolina	5	..	..	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..
So. Dakota	7	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..
Tennessee	14	..	..	..	..	..	..	..	..	..	3	..	..	..	1	..	2	1	..	1	..	2	1	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Texas	136	2	..	9	2	2	..	..	2	..	4	..	16	1	4	1	..	12	..	1	2	5	3	6	10	..	..	..	..	1	2	3	1	1	1	15	..	4	1	..	1	12	..	..	..	1	..	..	..	..	..	1
Utah	14	..	..	..	1	..	..	..	1	..	..	..	9	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
Vermont	6	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Virginia	27	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	4	..	1	..	..	1	..	..	..	..	..	..	3	1	..	..	..	..	3	..	1	..	1	..	2	..	..	2	..	..	4	1	..	..
Washington	66	1	1	..	2	..	..	..	..	..	..	2	9	2	3	2	..	3	..	..	..	4	2	1	3	9	3	..	..	..	..	..	2	1	..	7	2	..	1	..	1	..	..	..	..	..	1	2	..	..	..	..
W. Virginia	39	..	..	1	1	..	..	..	2	..	6	..	5	2	..	..	4	1	..	10	..	..	..	1	..	..	..	..	..	..	..	2	1	..	5	..	3	..	1	..	1	..	1	10	..	..	..	..	..	..	..	..
Wisconsin	45	..	1	1	..	..	..	..	..	..	1	..	15	..	1	..	..	..	..	..	..	1	7	..	4	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	..	..	..	11	..	..
Wyoming	10	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	1	2	..	1	..	..	..	..
Totals	2144	35	9	50	30	23	12	5	25	4	59	20	276	49	82	52	51	50	14	60	37	50	57	27	120	29	75	5	5	9	6	144	14	17	62	44	20	118	4	21	12	68	54	12	24	43	34	18	31	10	45	22	3	11
Number		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53

This table shows the number of physicians registered by each state through reciprocity during 1923. Read from left to right, it shows the total number of physicians registered through reciprocity in the state named and the number of such candidates coming from each of the states named at the top of the various columns. Read from above downward, the figures show the number of physicians who left the state named at the head of the column and went to each of the states named in the corresponding lines, and at the bottom the total number of candidates leaving the state to go elsewhere. The line at the bottom shows in what states physicians who registered through reciprocity obtained their original licenses. The total number licensed by reciprocity was 2,144 or 200 more than in 1922. This total includes 11 osteopaths, 10 in Texas and one in Wisconsin, who were granted full privileges as physicians and surgeons.

TABLE L.—*Reciprocal Registration in Five Years (Showing What States Issued Original Licenses)*

STATE	Physicians Going from States Named During					Totals
	1919	1920	1921	1922	1923	
Alabama	27	32	31	19	25	134
Arizona	7	6	8	12	9	42
Arkansas	72	58	33	43	50	256
California	14	23	23	28	30	118
Colorado	22	13	18	15	21	89
Connecticut	12	9	10	11	12	54
Delaware	8	6	10	12	5	41
District of Columbia	30	37	20	27	25	139
Florida	2	3	4	1	4	14
Georgia	38	47	40	34	58	217
Idaho	7	11	14	10	20	62
Illinois	325	307	304	246	276	1518
Indiana	57	52	50	44	49	252
Iowa	71	68	61	65	82	387
Kansas	75	65	54	41	52	287
Kentucky	71	68	56	40	51	286
Louisiana	36	43	40	33	50	202
Maine	18	16	20	14	14	82
Maryland	61	62	62	64	60	310
Massachusetts	36	50	31	38	37	201
Michigan	69	58	70	70	50	317
Minnesota	27	66	47	40	57	237
Mississippi	48	17	24	24	27	140
Missouri	144	148	156	126	120	691
Montana	8	17	41	23	29	118
Nebraska	60	71	48	87	75	311
Nevada	8	9	5	5	5	32
New Hampshire	24	5	10	7	5	51
New Jersey	30	27	15	25	9	106
New Mexico	9	3	3	3	6	24
New York	197	168	135	127	144	766
North Carolina	24	15	21	8	14	82
North Dakota	17	25	15	18	17	92
Ohio	73	98	58	70	62	361
Oklahoma	52	36	27	27	44	177
Oregon	15	18	6	26	20	85
Pennsylvania	113	123	92	90	119	537
Rhode Island	4	1	3	6	4	18
South Carolina	5	11	10	24	21	71
South Dakota	3	15	11	9	12	50
Tennessee	124	102	91	75	68	460
Texas	38	33	43	34	54	202
Utah	17	22	21	17	12	89
Vermont	25	18	11	13	24	91
Virginia	61	59	52	46	43	260
Washington	21	23	27	37	34	142
West Virginia	41	41	18	24	18	142
Wisconsin	51	35	30	27	31	174
Wyoming	6	7	8	4	10	35
Army, Navy, P. H. Service	120	108	61	52	45	386
National Board of Medical Examiners	19	18	23	15	22	97
U. S. Territories and Possessions	4	8	2	8	3	25
Foreign and Misc.	2	8	8	10	11	39
Totals	2459	2458	2110	1944	2144	11115

This table shows that 11,115 candidates were registered through reciprocity during the last five years. In 1919 there was an increase of 1,487 over 1918 due to a large migration of physicians following the return from military service, and in 1920 this large number was continued. In 1921, there was a reduction of 349, and in 1922 there was a further reduction of 166. In 1923 there was an increase of 200. It will be noted that 120 were registered in 1919 on the basis of military service, the numbers since being 108 in 1920; 61 in 1921; 52 in 1922, and 45 in 1923. Of the 11,115 registered during the five years, 1,518 obtained their original licenses in Illinois and only 766 in New York.

nition to the low-grade medical colleges and to insist on reasonable standards of preliminary and professional education. In California and Texas the large registrations were apparently due to the generous provisions for reciprocity and for the licensing of osteopaths as physicians. In 1920 California had 651 registrations, including 501 (76.9 per cent.) who were registered by reciprocity. In 1921, 1922 and 1923 this state has retained second place in the number of registrations. During the last five years, New York registered 3,871, the highest number, followed by California with 2,999; Illinois with 2,211; Ohio with 1,490, and Pennsylvania with 1,488. The three lowest registrations are New Hampshire with 79, Delaware with 83, and North Dakota with 90.

Medical Training of Applicants Licensed in 1923

Table I is of special interest, since it shows for each state the numbers of candidates coming from medical schools rated in classes A, B and C, thereby indicating the character of the medical training of the candidates licensed during 1923. Of the 6,321 candidates registered, 3,998 were licensed by examination and 2,323 by reciprocity or on presentation of acceptable credentials. Those who graduated prior to 1907, when the first classification of medical colleges was completed by the Council on Medical Education, are included among those graduating from "Miscellaneous Colleges." Among the graduates of Class C schools are included 48 graduates of osteopathic colleges who were licensed as physicians in Colorado, Massachusetts, Texas and Wisconsin.

As will be noted, the largest number of Class C graduates were licensed in Massachusetts, 59, followed by Missouri with 38, Arkansas with 36, and Connecticut with 27. All but one of the 36 Class C graduates registered in Arkansas were licensed by the eclectic board. In Connecticut all but one of the 27 Class C graduates were certified for licensure by the eclectic board, the one having been licensed by the homeopathic board. Of 28 candidates certified for licensure by the eclectic board, including 2 graduates of Class B colleges, 18 were by examination and 10 by reciprocity. Ten of these applicants applied to the Board of Health and obtained licenses, which were revoked following the investigation by the Connecticut Special Grand Jury. One other applied for a license which was refused, and 17 of those certified did not apply to the Board of Health for their licenses.

California registered 56 Class B graduates, the largest number, followed by New York with 39. Illinois and Ohio each with 25. Only Class A graduates were registered by either examination or reciprocity in New Hampshire, Rhode Island, South Dakota, Michigan and Vermont, in 1923.

Of the 6,321 physicians registered by all methods in 1923, 4,755, or 75.2 per cent., graduated from Class A medical colleges; 380, or 6.0 per cent., from Class B colleges; 299, or 4.8 per cent., from Class C colleges, and 887, or 14.0 per cent., graduated prior to 1907, when the first classification of medical colleges was prepared, or came from foreign medical colleges. By comparing these figures with the results for the previous five years as shown in Table 3, it is noteworthy that the percentages from Class B and Class C colleges are steadily decreasing and the percentage of graduates of Class A colleges increasing. This is notwithstanding the fact that in a few states osteopaths are being licensed as physicians and surgeons.

Training of Physicians Registered in Six Years

Table J is of special interest and shows the character of the training of physicians registered during the last six years. It is noteworthy that of the 35,497 physicians registered in six years, 24,627, or 69.4 per cent., were graduates of Class A medical schools, 3,594, or 10.1 per cent., were graduates of Class B schools, and 1,903, or 5.4 per cent., were graduates of Class C schools. Graduates of foreign medical schools and those who graduated prior to 1907 from medical schools which since that year have not always been rated in Class A, have been grouped under "Miscellaneous Graduates," and during the six years 5,373 of these graduates were registered.

It is noteworthy that the largest number of candidates who registered graduated from Class C schools or osteopathic colleges was 324 in California, the next highest being 199 in Massachusetts, 171 in Connecticut, 162 in Illinois, 160 in Arkansas, 150 in Colorado, 125 in Texas and 118 in Missouri.

Registration by Reciprocity

Table K gives those registered without examination on presentation of satisfactory credentials, which included a license issued by some other state or by the National Board of Medical Examiners. Some state boards—Arizona, California, Colorado, Delaware, Maryland, New Hampshire, New Jersey and North Carolina, as examples—accept a physician's credentials if satisfactory, whether or not the state board issuing the original license returns the favor. Had not reciprocal relations been established by the forty states shown in this table, 2,144 physicians—many of whom had been in practice for ten or more years—would have been compelled to undergo the ordeal of a second trying examination.

Table L shows in what states were granted the original licenses of those who were registered elsewhere under the reciprocity provision during the last five years. Of the 11,115 physicians licensed through reciprocity during the last five years, the largest number coming from any one state was 1,518 who obtained their original licenses in Illinois. Although New York has a larger number of medical college graduates each year than Illinois, only 766 physicians obtained original licenses in New York and registered elsewhere through reciprocity in the last five years. This is accounted for by the fact that Illinois has reciprocal relations with twenty-eight states, while New York has relations with only nine.

Unlicensed Graduates

Table M shows the number of students in each graduating class since 1910 who have not been reported as licensed by some state board of medical examiners. The figures are shown separately for the United States and Canada. The larger number for 1922 and 1923 doubtless include many who are serving as interns in hospitals. The figures include also those who are teachers, laboratory workers, superintendents of hospitals or who are engaged in other lines of work bordering on medicine and who are not required to have licenses.

Table M.—*Number of Medical Graduates in Each of the Years Given Who Have Not Yet Obtained Licenses to Practice*

Class of	United States Medical Schools		Canadian Medical Schools	
	Total Graduates	No. Not Licensed	Total Graduates	No. Not Licensed
1910	4,440	38	308	4
1911	4,273	42	342	8
1912	4,483	28	263	6
1913	3,981	26	305	12
1914	3,594	32	321	15
1915	3,586	34	318	10
1916	3,518	52	306	15
1917	3,379	43	315	17
1918	2,670	61	270	39
1919	2,656	91	296	28
1920	3,047	75	251	34
1921	3,192	50	406	42
1922	2,529	129	434	118
1923	3,120	397	492	181
Totals	48,418	1,098	4,527	529

Revised to March 19, 1924.

Improved Standards of Licensure

Table N shows the states which have adopted one or two years of college work as a minimum standard of preliminary education for those who seek the license to practice medicine in those states. The first and third columns show, respectively, when the one year and the two years of premedical college work affected students matriculating in medical colleges, and the second and fourth columns give the years in and after which all applicants for licenses are affected by the increased requirements. This table shows the rapidity with which requirements of preliminary education were adopted by state boards since 1908. Prior to that year no state was

requiring as a standard of preliminary education more than a four year high school education. There are now forty-two states which have adopted the higher standard and, of these, thirty-eight require two years of preliminary college work. It is understood that in every instance the one or two years of collegiate work must have included courses in physics, chemistry and biology. As shown in the footnotes, in the District of Columbia, Massachusetts and Wyoming no standards of preliminary education have been authorized or adopted.

TABLE N.—*State Requirements of Preliminary Education*

There are now forty-two states (counting Alaska Ter.) which have adopted requirements of preliminary education in addition to a standard four-year high school education. Of this number 39 now require the two year standard. These states, the number of college years required and the time the higher requirements became or become effective are as follows:

State Examining Board of	One Year of College Work		Two Years of College Work	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates
Alabama	.....	....	1915-16	1919
Alaska	1914-15	1918	1918-19	1922
Arizona	1914-15	1918	1918-19	1922
Arkansas[1]	1915-16	1919	1918-19	1922
California	1915-16	1919	.....	....
Colorado	1908-09	1912	1910-11	1914
Connecticut[1]	1911-12	1915	.....	....
Delaware*	.....	....	.....	....
District of Columbia†	.....	....	.....	....
Florida	1914-15	1918	1918-19	1922
Georgia	.....	....	1918-19	1922
Idaho	.....	....	1915-16	1919
Illinois	1915-16	1919	1918-19	1922
Indiana	1910-11	1914	1911-12	1915
Iowa	.....	....	1911-12	1915
Kansas	1910-11	1914	1918-19	1922
Kentucky	1914-15	1918	1918-19	1922
Louisiana	1915-16	1919	1918-19	1922
Maine	1915-16	1919	1916-17	1920
Maryland	1914-15	1918	1918-19	1922
Massachusetts†	.....	....	.....	....
Michigan	1914-15	1918	1918-19	1922
Minnesota	.....	....	1908-09	1912
Mississippi	1915-16	1919	1919-20	1923
Missouri*	.....	....	.....	....
Montana	1914-15	1918	1918-19	1922
Nebraska*	.....	....	.....	....
Nevada*	.....	....	.....	....
New Hampshire	1914-15	1918	1915-16	1919
New Jersey	1915-16	1919	1917-18	1921
New Mexico	1914-15	1918	1918-19	1922
New York	1917-18	1921	1918-19	1922
North Carolina	1914-15	1918	1918-19	1922
North Dakota	.....	....	1908-09	1912
Ohio*	.....	....	.....	....
Oklahoma	1914-15	1918	1917-18	1921
Oregon	.....	....	1920-21	1924
Pennsylvania	1914-15	1918	.....	....
Rhode Island	1914-15	1918	1918-19	1922
South Carolina	.....	....	1918-19	1922
South Dakota	1908-09	1912	1911-12	1915
Tennessee	1916-17	1920	1918-19	1922
Texas	1914-15	1918	1922-23	1926
Utah	1913-14	1917	1922-23	1926
Vermont	1913-14	1917	1918-19	1922
Virginia	1914-15	1918	1917-18	1921
Washington	1914-15	1918	1918-19	1922
West Virginia	1917-18	1921	1920-21	1924
Wisconsin	.....	....	1915-16	1919
Wyoming†	.....	....	.....	....

* Require a four-year high school education or its equivalent.
† No fixed standard.
1. The higher standards in Arkansas and Connecticut are evidently not enforced by the sectarian licensing boards of those states.

In Table O the advances in standards of licensure are shown for all states since 1904. The most marked increase is in regard to the requirement of collegiate work in forty states—referred to in Table N. An equally great increase is shown in the number of states—now forty-six—which are refusing to recognize low-grade medical colleges. Two other states, Arkansas and Connecticut, could be added to the two lists referred to, were it not for the eclectic boards of those states which are still "recognizing" inferior schools.

Although marked improvements have been made in state requirements for licensure, nevertheless, as indicated by the last column, there is still room for improvement. The greatest needs are for a wider adoption of the requirement of the hospital intern year, the standard of two years of premedical college work, and—a matter of more vital importance—a more general and larger use of practical tests in the examinations. The states in which the board are making really effective use of such examinations are Illinois, Massachusetts, Minnesota, North Dakota, Ohio and South Dakota. They are being followed to a certain extent in a few other states.

TABLE O.—*Advances in State License Requirements in Seventeen Years*

Requirement or Provision	States Having Provision for			States Still Having No Provision for
	1904	1923	Increase	
Preliminary Education—				
Any requirement	20	45	25	5[1]
A standard four-year high school education or higher	10	45	35	5[1]
One year or more of college work	0	40	40	10[2]
Two years of college work as a minimum	0	36	36	14[2]
That all applicants be graduates of a medical college	36	49	13	1[3]
That all applicants undergo an examination for license	45	50	5	0
Hospital intern year required	0	11[4]	11	39
Full authority by board to refuse recognition to low-grade colleges	14	48	34	2[5]
Boards refusing to recognize low-grade colleges	5	46[6]	41	4[7]
Reciprocal relations with other states	27	44	17	6[7]
Single boards of medical examiners	36	45	9	5[8]

1. District of Columbia, Massachusetts, Wyoming and, because of sectarian licensing boards, Arkansas and Connecticut.
2. See Table N and footnotes.
3. Colorado.
4. Pennsylvania, 1914; New Jersey, 1916; Alaska, 1917; Rhode Island, 1917; North Dakota, 1918; Washington, 1919; Illinois and Michigan, 1922; Iowa, 1923; South Dakota, 1925, and Delaware, 1928.
5. District of Columbia and Massachusetts.
6. See Table D. In two states, Arkansas and Connecticut, each of which has three separate boards, only the regular (nonsectarian) boards have refused recognition to low standard medical colleges and have enforced higher standards of preliminary education.
7. Alaska, Arizona, Connecticut (regular board), Florida, Massachusetts, Rhode Island. To this list should be added the outlying territories of Canal Zone, Philippine Islands and Porto Rico, which have no provision for reciprocity.
8. Multiple boards still remain in Arkansas, Connecticut, District of Columbia, Louisiana and Maryland.

IN CONCLUSION

In the publication of these statistics, the endeavor has been to present the facts, a knowledge of which is always beneficial. We reiterate our acknowledgments to the state licensing boards for their ready cooperation and the complete reports which have been furnished. We believe the information here published will be of service not only to the medical colleges and the state boards, but also to the public.

NATIONAL BOARD OF MEDICAL EXAMINERS

The National Board of Medical Examiners, which was organized in 1915, consists of nineteen members, including the Surgeon-Generals of the Army, Navy and Public Health Service, and one other representative of each of those services, three representatives of the state medical licensing boards and six members appointed at large. Up to Dec. 31, 1921, eleven examinations were held as follows:

Date of Examination	Where Held	Total Examined	Passed	Failed	Percentage Failed
Oct., 1916	Washington	10	5	5	50.0
June, 1917	Washington	12	9	3	33.3
Oct., 1917	Chicago	28	22	6	21.5
Jan., 1918	New York	20	18	2	10.0
Apr., 1918	Ft. Riley, Ft. Oglethorpe	23	18	5	26.1
Dec., 1918	Chicago, New York	16	15	1	6.3
June, 1919	Philadelphia	52	51	1	1.9
Feb., 1920	Chicago, St. Louis	48	36	12	25.0
May, 1920	Philadelphia	60	46	14	23.3
Feb., 1921	Rochester, Minn.	16	11	5	31.3
June, 1921	Boston	40	37	3	7.5
	Totals	325	268	57	14.4

Following completion of the examinations shown in the above table, those who were passed were granted the board's certificate. Since Jan. 1, 1922, however, the examinations have been divided in three parts as follows:

Part I, a written examination in the six fundamental medical sciences: Anatomy, including histology and embryology; physiology, physiologic chemistry; general pathology; bacteriology; materia medica and pharmacology. Part II, a written examination in: Medicine, including pediatrics, neuropsychiatry and therapeutics; surgery, including applied anatomy, surgical pathology and surgical specialties; obstetrics and gynecology; public health, including hygiene, and medical jurisprudence. Part III, a practical examination in each of the following four subjects: (*a*) Clinical medicine, including medical pathology, applied physiology, clinical chemistry, clinical microscopy and dermatology; (*b*) clinical surgery, including applied anatomy, surgical pathology, operative surgery and the surgical specialties of the diseases of the eye, ear, nose and throat; (*c*) obstetrics and gynecology; (*d*) public health, including sanitary bacteriology and the communicable diseases.

Parts I and II are written examinations held in any Class A medical school and Part III is entirely practical and clinical and given by subsidiary boards in Boston, New York, Philadelphia, Minneapolis, Iowa City, San Francisco, Denver, New Orleans, Baltimore, Galveston, Cleveland, St. Louis, Chicago, Washington, D. C., and Nashville. The fee is $25 each for the first and second parts and $50 for the third.

Three examinations in Parts I and II have been held as follows:

PART I

Date of Examination	Total Examined	Passed	Incomplete	Failed	Percentage Failed
February, 1923	134	112	5	17	12.7
June, 1923	251	164	41	46	18.3
September, 1923	122	73	31	18	14.8
Totals, 1923	507	349	77	81	16.2
1922	388	263	58	67	17.3
Totals	895	612	135	148	16.5

PART II

Date of Examination	Total Examined	Passed	Incomplete	Failed	Percentage Failed
February, 1923	28	26	..	2	7.1
June, 1923	112	99	1	12	10.7
September, 1923	52	45	1	6	11.5
Totals, 1923	192	170	2	20	10.4
1922	109	90	..	19	17.4
Totals	301	260	2	39	12.6

The examinations in Part III, which were entirely clinical and practical, were held in several of fifteen subsidiary centers in different parts of the country. The results of the examinations were as follows:

PART III

Examinations of	Total Examined	Passed	Failed	Percentage Failed
1922	28	28	0	0.0
1923	76	75	1	1.3
Totals	104	103	1	1.0

Of the 507 who took the examination in Part I, 77 are listed as incomplete. These are the candidates who took examinations in all but one of the subjects included in Part I. These are listed as incomplete until they have taken an examination also in the remaining subject. They, therefore, are not Fifty-three medical schools were represented in Parts I, counted among either those who passed or those who failed. II and III of the examination in 1923.

Colleges Represented in Examinations in Parts I, II and III, Excluding Duplications

College	Total Examined	Passed	Failed	Percentage Failed
Albany Medical College	10	7	3	30.0
Boston University School of Medicine	3	2	1	33.3
College of Medical Evangelists	3	3	0	0.0
Columbia University Coll. of P. and S.	9	7	2	22.2
Cornell University Medical College	12	12	0	0.0
Creighton University Medical College	6	6	0	0.0
Dartmouth Medical School	8	2	6	75.0
Emory University School of Medicine	3	2	1	33.3
Georgetown University School of Med.	1	1	0	0.0
Hahnemann Med. Coll. & Hos. of Phila.	3	2	1	33.3
Harvard University Medical School	89	85	4	4.5
Indiana University School of Medicine	2	0	2	100.0
Jefferson Medical College	3	3	0	0.0
Johns Hopkins University Med. Dept.	67	55	12	17.9
Long Island College Hospital	2	2	0	0.0
Loyola University School of Medicine	2	2	0	0.0
Marquette University School of Med.	1	1	0	0.0
Medical College of the State of S. C.	1	1	0	0.0
Northwestern University Medical School	1	1	0	0.0
Rush Medical College	43	36	7	16.3
St. Louis University School of Medicine	2	1	1	50.0
Stanford University School of Medicine	2	2	0	0.0
State University of Iowa Coll. of Med.	3	3	0	0.0
Syracuse University College of Medicine	11	6	5	45.5
Tufts College Medical School	10	7	3	30.0
Tulane Univ. of Louisiana Sch. of Med.	2	1	1	50.0
University and Bellevue Hosp. Med. Coll.	2	2	0	0.0
University of Beirut	1	1	0	0.0
University of Buffalo Medical Dept.	17	11	6	35.3
University of Cincinnati Coll. of Med.	2	2	0	0.0
University of Colorado School of Med.	4	2	2	50.0
University of Illinois College of Medicine	8	7	1	12.5
University of Louisville Medical Dept.	5	3	2	40.0
University of Maryland School of Med.	1	0	1	100.0
University of Michigan Medical School	4	3	1	25.0
University of Minnesota Medical School	8	6	2	25.0
University of Nebraska College of Med.	10	8	2	20.0
University of N. Dakota School of Med.	6	2	4	66.7
University of Odessa	2	0	2	100.0
University of Oklahoma School of Med.	1	0	1	100.0
University of Oregon Medical School	7	6	1	14.3
University of Pennsylvania Sch. of Med.	72	68	4	5.6
University of Pittsburgh School of Med.	4	4	0	0.0
University of Prague	1	1	0	0.0
University of Tennessee College of Med.	3	0	3	100.0
University of Texas School of Medicine	3	2	1	33.3
University of Vermont College of Med.	1	1	0	0.0
University of Virginia Dept. of Medicine	10	10	0	0.0
University of Zurich	1	1	0	0.0
Vanderbilt University School of Med.	6	3	3	50.0
Washington University School of Med.	17	14	3	17.7
Woman's Med. Coll. of Pennsylvania	46	36	10	21.7
Yale University School of Medicine	14	10	4	28.6
Totals, 1923	555	453	102	18.4
1922	354	268	86	24.3
Totals	909	721	188	20.7

Holders of certificates from the National Board of Medical Examiners are registered without further examination in the following twenty-eight states and the Canal Zone:

Alabama	Illinois	Nebraska	Rhode Island
Arizona	Iowa	New Hampshire	South Carolina
Colorado	Kentucky	New Jersey	Tennessee
Delaware	Maine	New York	Texas
Florida	Maryland	North Carolina	Vermont
Georgia	Massachusetts	North Dakota	Virginia
Idaho	Minnesota	Pennsylvania	Washington

A holder of the National Board certificate is eligible for the regular medical corps of the United States Army and the United States Navy without further professional examination if a review of his examination papers by the boards of examiners of those services is satisfactory. In 1920, a recommendation was adopted by the Triple Qualification Board of Scotland providing that holders of the National Board certificate be admitted to its final examination, and in January, 1921, similar action was taken by the Conjoint Examining Board of England.

Recognition of Government Examination

The examination given under federal authority, which should be generally recognized by all state licensing boards as a qualification for license to practice medicine, is that given to medical officers of the United States Army, Navy, and Public Health Service. In fact, retired officers from the services mentioned are now eligible to receive licenses without further examination in

Alabama	Illinois	Utah
Arizona	North Carolina	Virginia
California	Pennsylvania*	Wisconsin
Colorado	Porto Rico	

*Army and Navy only.

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SATURDAY, APRIL 26, 1924

STATISTICS OF STATE BOARD EXAMINATIONS

This week, for the twenty-first consecutive year, THE JOURNAL publishes statistics based on reports of examinations held by the various state medical boards during the previous calendar year. Such reports have been received from all boards, and the statistics, therefore, are complete. During the many years that these statistics have been published, the work has received an increasing and cordial support from the secretaries of the licensing boards—a cooperation for which we express our full appreciation, and without which the publication of these complete statistics would be impossible.

VERIFICATION OF DATA

The reports received have been carefully checked with the complete lists of graduates, which have been furnished by the deans of the various medical colleges. By this cross checking, errors have been corrected and the published data made more accurate. This checking has shown also whether or not each individual licensed has been a graduate of a bona fide medical college. Instances have not been infrequent, also, when diploma purchasers or other impostors have been discovered, and in most instances such licenses have been promptly revoked. The value of these statistics, therefore, has been greatly enhanced by this rechecking. The splendid cooperation that we have received from the deans of the medical colleges, to whom we are under special obligation, has been an essential factor in making the work possible.

IMPORTANCE OF THE STATISTICS

These statistics are of great importance, as they relate both to medical education and to medical licensure. For each state they show the number and qualifications of physicians admitted to the examinations; they show the character of the college from the educational standpoint, and whether each institution is in good standing with all state licensing boards, and they throw an important sidelight on the character of the product coming from medical schools. The material is so arranged that the facts relating to one college or state can be compared with any and all other colleges or states. The statistics show that in some states the public is well protected against illiterate and unqualified practitioners, while in others, in varying degrees, the opposite situation prevails. From a study of the statistics, also, when the public is not properly protected, a careful reader can easily decide where the responsibility rests.

RESPONSIBILITY FOR INADEQUATE METHODS

In a few states, the laws providing for the regulation of the healing art do not give the licensing board the needed authority;[1] in two other states, adequate authority is given but is divided between two or more separate licensing boards.[2] In several states, inadequate means are provided, either financially or in the essential personnel, for carrying out the provisions of the law. There has been a tendency on the part of state legislators, after having enacted serviceable medical practice laws establishing educational requirements for the licensing of physicians, to enact laws whereby certain groups of "healers" are enabled to obtain licenses to treat the sick without having secured the essential education and training.

MULTIPLE BOARDS

For several years, attention has been called in these columns to two states—Arkansas and Connecticut—in which the existence of separate boards of examiners has led to serious abuses in the licensing of physicians. For seven or more years it has been shown that, in these states, although excellent and reasonable standards of medical education have been upheld by the regular state medical boards, such standards have not been upheld by the separate and independent eclectic boards through which large numbers of "graduates" of low grade medical colleges have been licensed. In Connecticut, indeed, others were licensed regarding whom it is very doubtful whether they ever obtained an actual medical training anywhere.

In Arkansas, during the last seven years, 176 graduates of low grade colleges secured licenses that were granted by the Arkansas Board of Eclectic Medical Examiners, and of these, 166 were "graduates" of the Kansas City College of Medicine and Surgery. This was one of the two medical schools that were shown to have been involved with the diploma-mill ring so mercilessly exposed by the St. Louis *Star* a few months ago, and the dean of which was named as a member of the "ring." That this serious condition still exists in Arkansas is shown by the fact that, in 1923, the eclectic board licensed thirty-six graduates of this college.

1. Massachusetts, Wyoming, the District of Columbia and in a lesser degree, in several other states.
2. Arkansas and Connecticut. Separate boards exist also in Delaware, Maryland, Louisiana and the District of Columbia, but their work is under a central control.

THE LICENSING OF OSTEOPATHS

During the last seven years, the medical boards of ten states admitted osteopaths to their examinations, and licensed many of them as "physicians and surgeons." [3] The objection is not to the fact that these candidates were osteopaths but that they were licensed without being required to show evidence of educational qualifications equal to those demanded of physicians. Inspection shows that osteopathic colleges are nothing more than medical schools of a very low grade. Their entrance requirements are lower than are required by medical schools; they lack properly equipped laboratories in certain of the most fundamental medical subjects; they lack expert, well trained teachers in both laboratory and clinical subjects, and very few of their teachers have had a complete medical training—a case of the blind leading the blind; they seriously lack hospital and dispensary patients having the great variety of diseases that are studied in medical schools, and, in their instruction, the osteopathic manipulative method is so magnified that the many other valuable diagnostic and therapeutic measures are neglected or not taught. Despite these serious deficiencies in instruction, forty-eight osteopaths were licensed as physicians last year—twenty-six in Massachusetts, eleven in Texas, ten in Colorado and one in Wisconsin.

RECIPROCITY

Reciprocity, when properly administered, is of great benefit both to physicians and to the public. Physicians are enabled to secure registration in other states without the ordeal of a second rigorous examination when for good reasons they may desire to change their location. The public also is benefited if through reciprocity a qualified physician can, with the least possible hindrance, move from a district where the profession is already overcrowded to one where his services may be greatly needed. It appears, however, that in several states reciprocity has resulted in seriously lowering the educational standards, since physicians are licensed through reciprocity who have already failed at examinations held by the state, or who would not have been admitted to examinations in the state. A study of Table I, during the last seven years, shows that fifty-five graduates of Class C medical schools were registered by reciprocity in four states where none were licensed by examination, and, in fact, in all of these states such graduates are reported as ineligible for examination. The largest disproportion is found in Kansas, where forty-five such physicians were registered by reciprocity where none were licensed by examination. In Texas, 115 graduates of low grade colleges were registered by reciprocity, and fifteen were registered by examination, despite the board's announced ruling debarring them.

3. Altogether, 518 osteopaths were licensed as physicians in the last seven years; California licensed 248; Texas, 119; Colorado, 83; Massachusetts, 47; Oklahoma, 8; Wisconsin, 6, Michigan, 3, and New Hampshire and Oregon, each 1.

QUALIFICATIONS OF PHYSICIANS LICENSED

Special attention is called to Table J,[4] which shows the classification of the medical colleges from which the physicians graduated who were licensed in each state during the last six years. In each of eight states over 100 Class C graduates were licensed; the largest number, 324, in California, followed by 199 in Massachusetts; 171 in Connecticut; 162 in Illinois; 160 in Arkansas; 150 in Colorado; 125 in Texas, and 118 in Missouri. It is noteworthy that the graduates referred to included those coming from five Class C medical schools, three of which were reported as directly involved with the diploma-mill ring, and in regard to which scathing reports have recently been published following the recent investigations made by the Connecticut Special Grand Jury.[5] An encouraging fact shown in this table is that of the 35,497 physicians licensed during the last six years, 24,627, or 69.4 per cent., were from Class A medical schools, while only 1,903, or 5.3 per cent., came from those rated in Class C and other low type institutions. What is still more encouraging, as shown in Table 3,[6] is that the percentage of those licensed who graduated from Class A medical schools is increasing each year, while the percentages of those coming from Class B and Class C colleges are decreasing.

EFFECTS OF PUBLICITY

The beneficial results of publicity in medical licensure may be noted in Table O. Higher standards of preliminary education have been adopted; all states but Colorado require that applicants must have graduated from a medical school; all states now require an examination of all applicants; forty-eight states have obtained and are using the authority to refuse recognition of low grade medical colleges;[7] forty-four states have established reciprocal relations with other states; eleven require a hospital internship as an essential for the license, and all but two states—Arkansas and Connecticut—have abolished their separate boards of eclectic medical examiners or have limited their authority—and the facts just presented show how important it is that these two states take similar action.

On medical education, the effect of these statistics has been even more pronounced. The publicity regarding the failures of graduates at state licensing examinations and the nonrecognition of various colleges (Table 1) has impelled medical schools to improve greatly their facilities for teaching. Such improvements are evidenced by the larger number of colleges that are now recognized in all states as compared to five years ago.

Briefly, to each medical school these statistics show what improvements are essential if its graduates are to succeed in state board examinations; what state boards are requiring as a minimum of preliminary education,

4. "Qualifications of Physicians Licensed," page 1357.
5. J. A. M. A. 82: 1067 (March 29), 1140 (April 5), 1219 (April 12) 1924.
6. "Source of Physicians Licensed in Seven Years," page 1357.
7. See Table D, page 1352.

and in what states the boards are refusing to examine its graduates. To each state board these statistics show the numbers and qualifications of the physicians licensed as compared with those licensed in other states, and the further improvements that are needed in its educational standards and methods of examination. Owing to political conditions and other factors, standards in certain states fluctuate considerably; but, on the whole, there has been decided progress. Continuous publicity has led to a general improvement and to a great uniformity in educational standards and in the methods of examination; to a wider use of reciprocity; to a lessened confusion in the licensing of physicians throughout the country, and to correspondingly better safeguards for the public against the licensing of those who are incompetent.

ANIMAL PARASITOLOGY

Several correspondents have expressed their satisfaction with a recent editorial statement in THE JOURNAL [1] wherein the dependence of medicine on the progress of the underlying sciences was specifically emphasized. It was, in fact, a plea to the physician to seek more freely the cooperation of experts whose special training in science may not have brought them into direct relations to the profession of medicine. An impressive illustration of what this may mean was pointed out in a recent address of Professor Ward [2] of the University of Illinois on the present lines of attack on animal parasitology. Modern research is contributing new knowledge and, in some instances, is entirely revolutionizing the older conceptions of the life cycles of parasites. The demonstrations of unsuspected migrations into the host tissues have been particularly surprising. Thus, Ward indicates that the dictum of earlier investigators that the intestinal roundworm, *Ascaris lumbricoides*, developed directly to maturity in the intestine after ingestion of the infective stage had been accepted without question, notwithstanding a lack of knowledge of what actually happened. When, however, the investigations of Stewart, Ransom and his co-workers, Fülleborn and others, established the facts in the life cycle of *Ascaris*, an entirely new field was opened up. The migration through the tissues and the attacks on the lungs were early seen to be directly connected with conditions in the host previously unexplained and not regarded as in any relation to the parasite. Its serious import to the host, Ward adds, at once became evident, and one could for the first time get a time picture of the significance of an organism previously considered of minor clinical and practical importance. Chandler [3] ventures the belief that the production of a serious and often fatal pneumonia in various species of test animals by larvae developed from eggs experimentally fed to them leaves little room for doubt that a similar condition can arise after human infection, and that *Ascaris* may be the cause of certain pulmonary disorders in man.

In many instances it is the hygienist even more than the medical practitioner that is primarily concerned with such studies. Much has been done through the experimental infection of hosts to secure larval forms in known stages and to determine the period essential for development under fixed conditions. These data are of the utmost importance in preventive medicine, and it is almost trite, Ward adds, to emphasize the fact that the treatment of parasitic diseases must always be primarily and often in its entirety a problem of prevention rather than of repairing the difficulty after the malady has made its appearance.

The modern story of parasitology marshals before us a significant array of important discoveries. The life histories of many species have been more clearly elucidated. The parasitic protozoa have acquired a place in pathology. Trypanosomes and trypanosomiasis have attained a large prominence and have stimulated new discoveries in the field of chemotherapy. The causal organism of yellow fever, described by Noguchi, and other spirochetes, have aroused interest. The hookworm has become the subject of world-wide search. We are reminded that when, three quarters of a century ago, the Philadelphia nautralist Joseph Leidy, founder of American parasitology, began to study and write on animal parasites, he entered on virgin territory, for no work had been done previously on that subject in America, and for many years he worked alone. Today, a competent writer [3] feels justified in stating that animal parasitology has developed more in the last decade than in the entire previous period of recorded science, and the contrast in America is even more striking than in Europe. Progressive medicine may well take note of this.

1. Medicine and the Community of Scientific Thought, editorial, J. A. M. A. **82**: 968 (March 22) 1924; Correspondence, **82**: 1138 (April 5) 1924.
2. Ward, H. B.: Present Lines of Attack on Animal Parasitology, Science **59**: 305 (April 4) 1924.
3. Chandler, A. C.: Animal Parasites and Human Disease, New York, John Wiley & Sons, 1922.

ACIDIFICATION OF BACILLUS BOTULINUS TOXIN

A few years ago, Bronfenbrenner and Schlesinger [1] reported that the toxicity of the toxins of *Bacillus botulinus* might be greatly increased by acidification (approximately *p*H 4.0), but the kind of acid used was not mentioned in the published data. Since outbreaks of botulism have been reported from the consumption of home canned string beans and beets, served as salads and therefore containing vinegar,[2] the matter has practical importance. However, Geiger and Gouwens [3] have found recently that there is apparently no increase in potency of the toxin of *Bacillus botulinus* at any hydrogen-ion concentration that was experimentally

1. Bronfenbrenner, Jacques; and Schlesinger, M. J.: Proc. Soc. Exper. Biol. & Med. **1**: 19, 1921; Some of the Factors Contributing to Toxicity of Botulinus Toxin by Mouth, J. A. M. A. **78**: 1519 (May 20) 1922; Science **56**: 280, 1922.
2. Pub. Health Bull. 127, U. S. P. H. S., pp. 8, 11, 18, 43 and 47.
3. Geiger, J. C., and Gouwens, W. E.: Pub. Health Rep. **38**: 2249-2252 (Sept. 28) 1923.

used, regardless of the length of time of exposure at icebox and room temperatures. In some of their experiments, home canned string beans and corn were used that had caused outbreaks of botulism in Montana and the state of Washington. It seems significant that these vegetables, corn and string beans, were of different hydrogen-ion concentrations; the toxic corn, *p*H 6.4; the string beans, *p*H 4.6; yet the minimal lethal dose for mice of each vegetable toxic filtrate was the same, 0.00001 c.c. Geiger and Gouwens state also that the injection of 1 c.c. of a buffered solution of acetic acid of *p*H 4.0 caused the death of mice, and this occurs whether *Bacillus botulinus* toxin is present or absent. In contrast, these authors state that hydrochloric acid solutions do not kill mice within the *p*H limits of 4.0 and 2.3, when injected in 1 c.c. amounts.

Bronfenbrenner and Schlesinger[4] have recently reported that the toxin of *Bacillus botulinus* "resists a degree of acidity equivalent to that of the stomach, even when exposed thereto for twenty-four hours at 37 C." These authors furthermore state that "the toxin exposed to the action of acid killed mice more promptly than did the original toxin. For, whereas the three mice receiving the unmodified toxin died in from sixteen to twenty hours, all the mice receiving the unmodified toxin died in from sixteen to twenty hours." It is also suggested that there may be an optimal degree of acidity so far as concerns the potency of the toxic mixture.

The difference in the results of these separate groups of workers is an indication of the need for further experimentation. Since the toxin of *Bacillus botulinus* is apparently rapidly absorbed from various mucous membranes of the body,[5] the question of increased toxicity due to the contact of the toxic food with the acid gastric juice becomes of doubtful clinical importance. Absorption of the toxin probably begins before the food reaches the stomach. There are, in fact, several outbreaks on record in which the causative food was stated to have been only tasted and not swallowed; yet death from botulism occurred. Certainly, many foods that cause outbreaks of botulism contain so potent a toxin as to cause death of all persons that consume them. It is evident that the poisonous foods may be, originally, of varying hydrogen-ion concentrations, as in the instances cited above, when the range was from *p*H 4.6 to *p*H 6.4.

Although the hydrogen-ion concentration of the causative poisonous foods in outbreaks of botulism varies, this chemical difference has never been shown to affect the mortality rate. The hydrogen-ion concentration, however, does have a profound effect in retarding the growth of the spore of *Bacillus botulinus* in canned foods and consequently preventing the formation of toxin, and also on the thermal death point.

4. Bronfenbrenner, Jacques; and Schlesinger, M. J.: J. Exper. Med. 39: 509 (April 1) 1924.
5. Geiger, J. C.: Am. J. Pub. Health 14: 309-310 (April) 1924.

Current Comment

CONNECTICUT'S INVESTIGATION OF DIPLOMA-MILL ACTIVITIES

In the State Board Number of THE JOURNAL published a year ago, it was shown that, during the two previous years, 140 graduates of low grade medical schools were licensed by the Connecticut eclectic medical board. It was shown also that this number included not only graduates of eclectic medical colleges, but also applicants who should have applied to the Connecticut regular board because they were graduates of regular medical schools. These facts were clearly set forth in the statistics and commented on editorially. It is learned that the licenses in Connecticut are issued by the commissioner of health to physicians after they are examined and certified by the three separate licensing boards. Shortly after the statistics were published, the present commissioner of health of Connecticut, after an investigation of the manner in which physicians had been certified by the eclectic board, revoked the licenses of fifty-six physicians who had been certified by that board and to whom licenses had been issued by his predecessor. It appears that the licenses issued to thirty-three of these physicians were illegal because the colleges from which they graduated were not listed as approved by the eclectic board. Thereupon, it is reported, the eclectic board listed the colleges as approved and again certified the physicians for licenses. For the other twenty-three, evidently graduates of non-eclectic medical schools, some other measure was necessary. The eclectic board evidently was strongly entrenched politically, since a law was promptly enacted validating the licenses of these twenty-three physicians. The bill passed both houses of the legislature but was vetoed by Governor Templeton, who, in his veto message, declared that Connecticut was "a refuge for practitioners of every variety of schooling who lacked the education and qualifications to practice in other states." The investigation of the eclectic board's activties was being continued by the health commissioner and the attorney-general when, in October, 1923, it received an increased impetus through the exposure of the Missouri diploma-mill ring by the St. Louis *Star*. This exposure not only involved several medical schools from which many applicants who were certified by the eclectic board had graduated, but also specifically mentioned many of these applicants by name. A special grand jury was created, which continued the investigation, and shortly thereafter the licenses of 167 physicians who had been certified by the eclectic board were revoked. An inspection of the several medical schools involved was also ordered. Reports of these inspections, recently published,[1] set forth in a scathing manner the disgraceful conditions existing in those schools. Connecticut, therefore, is having a thorough housecleaning which, it is hoped, will result in establishing better safeguards against counterfeit physicians in that state. In Missouri, an investigation has been made and the revocation of the charters of the several medical schools

1. See Footnote 5, page 1363.

involved in the sale of diplomas has been recommended. We have yet to learn, however, that the charters have actually been revoked. The amendment to the practice act favoring low grade colleges, which was enacted two years ago, has since been repealed, and the medical board need no longer examine graduates of such institutions. In Arkansas, also, an investigation has been ordered, but nothing as yet has come from it. In the licensing of physicians, Arkansas and Missouri, no less than Connecticut, need a vigorous housecleaning.

PHYSICIANS AND CHIROPRACTORS OF NEW YORK HAVE NOT "COMPROMISED"

The medical profession has apparently been exploited in New York State for chiropractic purposes. Newspapers recently reported an alleged agreement between the profession and chiropractic interests in that state, stating that the medical profession had agreed to a bill regulating the practice of chiropractic. It was asserted that a physician and a chiropractor were to constitute a committee under the Board of Regents, to handle the chiropractic question; chiropractors now plying their calling without licenses were to be licensed without examination; and the degree of doctor of chiropractic was to be recognized—all with the approval of "the old school physicians." Actually no such agreement as was alleged had ever been reached; indeed, the Council of the Medical Society in the State of New York, at Albany, March 19, adopted a resolution "That the licensing and recognition of any cult be opposed"; and this resolution has not been revoked. No member of the state society has a right to revoke it or, on behalf of the profession, to approve legislation not in harmony with it. The newspaper rumor seems to have been based on the fact that a representative of the Medical Society of the State of New York was invited to sit as a listener at a conference called by the state department of education. In this meeting a bill designed to put the seal of approval of the state of New York on spine thumping as a method of curing syphilis, tuberculosis, insanity, blindness and all the other ills of mankind was considered, and the presence of the physician was seized on by interested parties as the basis of a canard for the exploitation of the cult. Even the newspapers of New York City gave circulation to the story. It should be remembered, in this connection, that advertising and publicity are major subjects in the chiropractic curriculum.

THE INFLUX OF FOREIGN PHYSICIANS

The United States has always been generous in its welcome to desirable physicians from other countries. The rules governing their licensure have never been as severe as those confronting an American physician who seeks the right to practice in foreign countries—restrictions which in some countries are so severe as to be almost prohibitive. Twenty-five or thirty years ago, there may have been reason for rigid measures because medical education in the United States had not reached its present degree of advancement. Then, also, the excellent medical training furnished in some centers of Europe was an added reason for welcoming the few foreign physicians who came to America. Whereas, in earlier years, the foreign physicians coming to the United States were comparatively few, the numbers have been rapidly on the increase since the World War, particularly as concerns physicians from central Europe. While only sixty-seven applied for licensure in 1919, there were 371 in 1923, and reports received since the first of the year show the numbers increasing to the proportions of an avalanche. Most of the new arrivals are unable to speak English; many are without friends and, in some instances, without visible means of support. Among them are also many undesirables, both from the educational and the moral standpoint. This country is already oversupplied with physicians, particularly in the large cities, where foreign physicians usually locate, and the conditions from overcrowding will be made more serious by this influx from abroad. Heretofore the regulations governing the licensure of foreign physicians apparently have been applied more liberally than for graduates of our own medical schools. The time appears to have come when we must pay special attention to this problem. The examination should be in English; the rules in regard to official reports regarding credits and credentials should be applied to foreigners the same as to graduates of American medical schools, and, still more important, the identity of the applicant should be established and certified in as strict a manner as for graduates of American medical schools. A few states—New York, Louisiana, Florida, Illinois and Indiana—now require applicants from abroad to be citizens of the United States, and other states are contemplating similar action. Certainly citizenship, or at least a declaration of intention, should be required. There is no longer any reason why regulations for the licensing of foreign physicians should be any less rigid than American physicians have to meet in other countries. The public needs protection against the incompetent or undesirable physician from abroad no less than against the medical impostor at home.

VENEREAL DISEASE APPROPRIATION

In the bill making appropriations for the Treasury Department, the appropriation for venereal disease control work was restored to the full amount allowed by the Bureau of the Budget, namely, $149,000. When the treasury appropriation bill was first reviewed in Congress, the sum of $149,000 estimated by the Bureau of the Budget for venereal disease control work was reduced to $25,000, which would have resulted in the elimination of the venereal disease control work as a part of the program of the United States Public Health Service. A conference of members of the Senate and House Appropriations Committees, however, concurred in the restoration of the amount to the full sum allowed by the Bureau of the Budget. Venereal disease control work as a function of the U. S. Public Health Service was first inaugurated in 1918. An act of Congress created in the Public Health Service a division of venereal diseases with the following duties: (1) to study and investigate the cause, treatment, and preven-

tion of venereal diseases; (2) to cooperate with state boards or departments of health for the prevention and control of such diseases within the states, and (3) to control and prevent the spread of these diseases in interstate traffic. Since the close of the war, the administration and Congress have engaged in a vigorous and commendable program of retrenchment in federal expenditures. As a part of this program of retrenchment, however, the idea was advanced that the venereal disease control work of the U. S. Public Health Service was primarily a war-time activity, and that with the cessation of hostilities the need for its existence no longer continued. It is, of course, easily apparent that venereal disease prevention is in no sense exclusively a war-time measure but one that must be given a place of importance in any organized peace-time program of public health. The seriousness and the ravages of these diseases and the odium that has been attached to the names of syphilis and gonorrhea have kept the public from being properly informed. The gradual awakening to the fact that this is a serious problem which requires the active effort of organized control work is encouraging.

PERISTALTIC FATIGUE

Diminution of the motor activities of the intestine is known to be involved in pathologic conditions in which it cannot easily be ascribed to purely local factors. Thus, intestinal paresis occasionally develops after operations, and particularly abdominal operations, even though there is no general peritonitis present. The consequences of the stasis resulting from the lack of motion may be serious for the organism, so that it is of large clinical importance to know how to overcome the primary cessation of peristaltic action. Most physiologists have attributed such peristaltic fatigue to a failure of the action of the muscular coats of the bowel. Henderson [1] of Toronto, however, has reached the conclusion that this assumption will not suffice to explain the facts; and he has presented experimental evidence which suggests that peristaltic failure may be due in part at least to fatigue of the nerve net. If this proves to be correct, it may be possible to secure effective relief by the administration of suitable drugs. In this connection, Henderson [2] also has offered a new explanation of the fecal vomiting that occurs in cases of intestinal stasis. Usually it is attributed to a reversed peristalsis in the bowel. Henderson has observed, however, that when intestinal tonus was low after distention and the intestine contained a quantity of fluid sufficient to fill it, the peristaltic waves that occurred were very shallow and had no effect in moving the contained fluid. Respiratory movements, however, were effective and the fluid gradually passed upward, entered the stomach, and was vomited. This interpretation, if verified, is likely to be of value to the surgeon; for mere stasis probably is something more amenable to direct pharmacologic influences than is a reversal of the normal movements of the intestine.

1. Henderson, V. E.: Studies in Peristaltic Fatigue, Am. J. Physiol. 66: 380 (Oct.) 1923.
2. Henderson, V. E.: Recent Pharmacological Studies in Intestinal Peristalsis, Canadian M. A. J. 13: 560 (Aug.) 1923.

Association News

THE CHICAGO SESSION

Fellows Should Have Pocket Cards for Registration

All Fellows who will attend the Seventy-Fifth Annual Session at Chicago, June 9-13, are urged to bring with them their 1924 Fellowship cards. These cards are necessary for prompt registration. Any one who has not received his 1924 Fellowship card should write for it at once.

Banquet for Section on Diseases of Children

Dr. E. J. Huenekens, secretary of the Section on Diseases of Children, announces that the annual banquet for that section will be held at the Congress Hotel, Chicago, Thursday, June 12.

The Woman's Auxiliary of the American Medical Association

The second annual meeting of the Woman's Auxiliary of the American Medical Association will be held in Chicago, June 10-13. All meetings will be held at the Edgewater Beach Hotel. The executive board will meet at 9 a. m., Tuesday, June 10. All national officers and the presidents of state auxiliaries compose the executive board of the Woman's Auxiliary. Wednesday evening, June 11, at 7 o'clock, there will be a subscription dinner. Visiting and local women are invited to register for this dinner. The general meeting will be held Thursday, June 12, at 9 a. m., at which time the reports from state auxiliaries will be heard and the election of officers will be held. The wives of all members in good standing in the American Medical Association are eligible to membership in the Woman's Auxiliary, and are invited to affiliate. Mrs. S. C. Red, 817 Caroline Street, Houston, Texas, is president.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Chiropractor Fined.—Harry Stine, a chiropractor of Florence, was found guilty of practicing medicine without a license in the circuit court, March 21, on two counts, receiving a fine of $250 and costs on the first, and $100 and costs on the second. His assistant was fined $150 on similar charges, according to reports.

State Medical Election.—At the annual meeting of the Medical Association of the State of Alabama, in Montgomery, April 15-18, Dr. Joseph D. Heacock, Birmingham, was elected president; Drs. Joel C. Chandler, Columbiana, and James M. Watkins, Troy, vice presidents; Dr. Benjamin B. Simms, secretary, and Dr. Jacob U. Ray, Jr., Woodstock, treasurer. The next annual meeting will be held in Birmingham, April 21-25, 1925.

COLORADO

Personal.—The announcement of the death of Dr. Will Howard Swan of Colorado Springs, which appeared in the April issue of *Colorado Medicine*, was an error. The name was confused with that of Dr. Albert F. Swan of Ramah, who died recently (THE JOURNAL, March 29, p. 1063).

CONNECTICUT

Medical Women Meet.—The Medical Women's Society of Connecticut met in Middletown, March 16, at the Middlesex Hospital. Dr. Mary James, medical missionary at Wuchang, China, gave an address.

Society News.—The one hundred and thirty-second annual meeting of the Hartford County Medical Society was held at Hartford, April 1, under the presidency of Dr. Arthur S. Brackett, Bristol. The following officers were elected for the ensuing year: president, Dr. Clifford B. Brainard, Hartford; vice president, Dr. George H. Bodley, New Britain, and secretary-treasurer, Dr. Anthony W. Branon, Hartford. Dr. Francis G. Blake, professor of medicine, Yale University School of Medicine, New Haven, spoke on "Serum Treatment of Scarlet Fever."

DELAWARE

State Board Election.—At the annual meeting of the state health and welfare commission (formerly the state board of health) at Newark, April 7, Dr. William P. Orr, Jr., Lewes, was reelected president and Mrs. Huston, Seaford, was reelected secretary.——The following physicians were elected to the Dover board of health for the ensuing year: Drs. L. August H. Bishop, Edwin S. Anderson and Joseph S. McDaniel.

DISTRICT OF COLUMBIA

Society of Psychanalysts Organized.—The Washington Psycho-Analytical Society was organized, April 11. Membership is restricted to physicians, who, to be admitted, must present a thesis containing the history of one case successfully analyzed by the applicant. Another requirement is that before an applicant may be considered for admittance he must present evidence of having been successfully analyzed. The present officers of the society are: Dr. William A. White, president; Dr. Joseph C. Thompson, vice president, and Dr. Lucille Dooley, secretary-treasurer. The other charter members are Drs. Philip S. Graven, Lois D. Hubbard and Benjamin Karpman. The first paper presented to the society was: "An Analysis of a Case of Vampirism," by Dr. Philip S. Graven.

ILLINOIS

Adams County Medical Society News.—At the meeting of the society at Quincy, May 12, a symposium on "Periodic Health Examinations" will be held. Drs. John W. H. Pollard, Edmund B. Montgomery and Harold Swanberg of Quincy, will address the meeting.——Health Week will be celebrated in Quincy, May 11-17, under the auspices of the Adams County Medical Society.

Chicago

Physician Fined.—According to reports Dr. Charles McCormick, head of the notorious "McCormick Medical College," was fined $100 by Judge Carpenter, April 21, when he pleaded guilty to sending obscene matter through the mails.

Society News.—A dinner will be given at the Hamilton Club, April 23, in honor of Dr. Leonard Freeman of Denver, who will read a paper on "The Irritable Abdomen" before the Chicago Medical Society.——The attorney general of Illinois has informed the Chicago Medical Society that he is unable to provide attorneys for the enforcement of the Medical Practice Act. The council of the society has therefore appointed a committee to solicit funds by voluntary subscription to be used to defray the expense of defending the Medical Practice Act against attacks. Members of the medical profession are asked to contribute to this fund.

INDIANA

Hospital News.—Construction work will start next month on the Howard County Hospital, Kokomo, which will cost $135,000.——The new $85,000 Morgan County Memorial Hospital, Martinsville, was formally opened to the public, April 13. Dr. William J. Sandy, president of the Morgan County Medical Society; Dr. Charles P. Emerson, dean of the Indiana University School of Medicine, and Dr. Samuel E. Earp, president of the state medical association, gave addresses. The sum of $10,000 was donated to the institution by Mr. Hussey as a memorial to his son.——A new twenty-bed hospital will be erected in Gary. Bids will be taken, May 1.——The Culver Union Hospital, Crawfordsville, has been taken over by Montgomery County.

IOWA

Society News.—At the annual meeting of the Upper Des Moines Medical Society in Estherville, April 3, Dr. Cleanthus E. Birney, Estherville, was elected president; Dr. C. H. Schooley, Terril, vice president, and Dr. Harold L. Brereton, Emmetsburg, secretary.

KENTUCKY

Physician Fined.—According to reports, Dr. Fred Siddens, Bowling Green, was sentenced to thirty days in jail, fined $100 and held under a peace bond of $1,000 by Judge Rode, April 7, for violating the prohibition laws of Kentucky.

Personal.—Dr. James Ernest Fox, member of the staff of the Western State Hospital, Hopkinsville, has been appointed city health officer of Paducah.——Dr. Louis E. Young, Paducah, has been reelected physician of McCracken County for a period of two years.——Dr. Thomas S. Kendall, Yelvington, celebrated his ninetieth birthday, April 1, at the house in which he was born.——Dr. Jacob N. Bailey has been elected mayor of Paducah.

Venereal Clinic to Reopen.—The venereal disease clinic of Paducah, closed more than a year following refusal of the board of commissioners to provide funds, will be reopened, May 1. The board of health will provide a monthly sum toward the work, which will be under the supervision of Dr. J. Ernest Fox, city health officer. The clinic will be held three times a week at the Riverside Hospital. Patients will be asked to pay what they can afford toward defraying the cost of medicines.

MARYLAND

Meeting of American Surgical Association.—The forty-fifth convention of the fellows of the American Surgical Association was held at the Belvedere Hotel, Baltimore, April 17-19. Sir D'Arcy Power of London, fellow of the Royal College of Surgeons, who is a delegate to the convention, spoke at the morning session, April 16, on "The Coming of British Surgical Tradition to America." Dr. Albert J. Ochsner, Chicago, was elected president of the association to succeed Dr. George W. Crile, Cleveland; Dr. Robert B. Greenough, Boston, was reelected secretary and Dr. Charles H. Peck, New York, was elected treasurer.

MASSACHUSETTS

Personal.—Dr. Wilson G. Smillie, health officer of Covington County, Alabama, gave the first of a series of lectures to the students of the Medical School of Harvard University and of the School of Public Health and Hygiene, Boston, on tropical diseases and hookworm.

Antivaccination Petitions.—The committee on public health of the senate, March 19, refused leave to withdraw on the petitions of Walter Graves, that the production or use of virus of human origin be prohibited; of F. Mason Padelford, president of the Medical Liberty League, Inc., relative to vaccination and school attendance; and of Samuel B. Woodward, that the vaccination of certain children in private schools be compulsory.

MICHIGAN

Hospital News.—Construction work has been started on the new building for St. Joseph's Hospital, Mount Clemens, which will be erected at a cost of $350,000.

Physician Fined.—According to reports, Dr. Curtis L. Wolford, Grand Rapids, was fined $50 and costs in the superior court, March 23, for failing to report venereal disease.

Conference of County Secretaries.—A conference of officers of the state medical society, the public health committee and secretaries of the county societies met in Kalamazoo, April 16. Dr. Olin West, Secretary of the American Medical Association, addressed the meeting. After a dinner, given under the auspices of the Kalamazoo Academy of Medicine, papers were read by Dr. Morris Fishbein, Assistant to the Editor, Journal of the American Medical Association, and Dr. Isaac Abt, Chicago.

Personal.—The Saginaw County medical and dental societies gave a dinner in honor of Dr. C. H. Sample, former president of the medical society, at Saginaw, April 10, to celebrate his fifty-first year of practice. Dr. Preston M. Hickey, professor of the roentgen-ray department, and Dr. Chalmers J. Lyons, professor of oral surgery at the University of Michigan Medical School, Ann Arbor, gave addresses.——Dr. Louis A. King, has been elected mayor of St. Joseph.——Dr. Christopher G. Parnall, head of the city health department, Jackson, and director of the University Hospital, Ann Arbor, has resigned to accept the appointment as consultant in charge of the building program of the new medical unit at the University of Iowa, Iowa City.

MINNESOTA

Prize for Essay on Military Medicine.—The Hennepin County Medical Society of Minnesota has offered an annual prize of $50 to the Reserve Officers Training Corps member of the junior medical class at the University of Minnesota who submits the best essay on a military subject, according to an announcement issued by Lieut. Col. H. H. Rutherford, in charge of the medical R. O. T. C. at that institution. The essays will be submitted at the close of the school year. The winning paper will become the property of the Hennepin County Medical Society.

MISSISSIPPI

Personal.—Dr. Henry Boswell, Jr., superintendent of the Mississippi Tuberculosis Sanatorium, Magee, has resigned. ——Dr. John S. Gibson has been appointed health officer of Crystal Springs.

MISSOURI

St. Louis Graduate Clinics.—A two-weeks' course of graduate work at St. Louis, May 26-June 7, has been arranged by the St. Louis clinics for the benefit of visiting physicians. The principal hospitals in the city are cooperating to make the clinics a success. Physicians who take advantage of this opportunity will find clinical work in every department of medicine.

Society News.—The annual "presidents' night" dinner of the Jackson County Medical Society was given in Kansas City, April 1, with Dr. Scott P. Child, presiding. Drs. Robert T. Sloan (president, 1904); Jefferson D. Griffith (1910); Joseph L. Miller, professor of medicine, Rush Medical College, Chicago, and Guy L. Noyes, dean, University of Missouri School of Medicine, Columbia, were the principal speakers.

Hospital for Crippled Children Opened.—The $900,000 Shrine Hospital for Crippled Children, St. Louis, was opened to the public, April 13. It has a capacity for eighty children and an outpatient department. Charity patients only will be received. Crippled children accepted must be under 14 years of age and capable of being corrected to such an extent that they may be self-supporting in after life. It is nonsectarian. The formal opening will take place in June. Dr. Leroy C. Abbot is surgeon-in-chief and Dr. Frederick A. Jostes, resident physician.

Illegal Practitioners Arrested.—Two chiropractors, H. T. Jett and his wife, Blanche, of St. Louis, were arrested by the health department, April 10, charged with practicing medicine without a license, according to reports. Jett, it is stated, is a member of the board of education, being employed as a teacher in the Soldan High School.——"Dr." Walter H. Rankin, Glasgow, Scotland, it is reported, was arrested in St. Louis, April 10, charged with violating the medical practice act, the Harrison Narcotic Law and with obtaining money under false pretenses. He stated that his license to practice medicine in Scotland had been revoked following a term in prison.

NEW JERSEY

Remington Medal Awarded.—Prof. George M. Beringer, Camden, former editor of the *American Journal of Pharmacy* and president of the American Pharmaceutical Association, has been awarded the Remington Honor Medal of the association.

NEW YORK

Personal.—Dr. Harry H. Ebberts has resigned as manager of the Buffalo State Hospital.——Dr. Charles E. Roe, senior physician of the Binghamton State Hospital, has been appointed assistant clinical director of the Hudson River State Hospital.

Hospital News.—St. Mary's Hospital, Amsterdam, has let the contract for a new addition at a cost of $75,000.——A children's home will be erected by the Bruce Memorial Farm School, Valhalla, at a cost of $100,000.——A $25,000 addition will be erected for the Leonard Hospital, Troy.

New York City

Dr. Prudden's Benefactions.—The will of Dr. Theophil Mitchell Prudden leaves to Yale University $5,000 for the study of American archeology. Copyrights on three of the testator's books go to a nephew, Theodore M. Prudden, and a fourth to Dr. Francis Carter Wood. The Children's Aid Society receives $2,000 and the New York Association for the Blind and the Visiting Nurses' Association get $1,000 each. The remainder of Dr. Prudden's estate is bequeathed to relatives.

Red Cross Preparations.—At the recent conference of the Red Cross chapters of this city, Henry M. Baker, national director of disaster relief, detailed plans perfected to assist in disasters. He stated that in case of disaster the organization could be fully functioning within half an hour. The telephone company has emergency numbers for all Red Cross officials and arrangements have been made whereby anything needed can be obtained from the largest department stores at any hour.

Masons Take Over Broad Street Hospital.—After months of negotiation, the Masons of New York City have reached an agreement with the Society of the Broad Street Hospital, whereby the Masonic organization will assume the maintenance and support of the hospital. James Barber, founder of the hospital, will continue to be its president. The other officers elected were: vice president, Dr. William H. Dieffenbach; treasurer, Troy Alexander, head of the Masonic Hospital Foundation; secretary, Dr. Maxmilian Stern. The board of twenty-four directors continues largely intact.

Organization in Interests of Postgraduate Education.—A committee has been organized, under the auspices of the New York Academy of Medicine, which will take up the work started several years ago by the New York Association for Medical Education. The purpose will be to coordinate and develop the facilities for postgraduate study in the specialties and to make this information available to physicians of Greater New York. The members of the committee are: Drs. Charles N. Dowd, Haven Emerson, James Ewing, Charles L. Gibson, Emanuel Libman, James F. McKernon, Walter I. Niles, William H. Park, Eugene H. Pool, Dudley D. Roberts, George Gray Ward, Linsly R. Williams.

Chiropractor Sentenced to Sing Sing.—Ernest G. H. Meyer, chiropractor of Brooklyn, who was found guilty of second degree murder, April 8, following the death from diphtheria of Caroline Germuth (THE JOURNAL, April 12, p. 1203), was sentenced to serve from one to two years in Sing Sing, April 14, according to reports. Following a plea for mercy, Supreme Judge Hagarty said "The jury has found that through your negligence human life was sacrified. You took the responsiblity of treating this disease and have been held accountable for the results. Your conviction will serve as a warning to all parents responsible for children, and to adults responsible for themselves, and will serve, also, as a warning to all persons practicing medicine illegally." It was brought out at the trial that many taxicab drivers in the city practice chiropractic in their spare time.

Quacks Kept Moving.—Under the auspices of the Kings County Medical Society and the police commissioner, District Attorney Palmer has started a survey to rid Kings County of quacks. Policemen have been instructed to report every person on his beat who hangs out a "shingle." The names are looked up in the medical directory and at the county clerk's office. When not found in either place an investigator is sent out. A large number of quacks have avoided arrest by constantly moving, it is said, but eventually it will be practically impossible for them to escape.——A man from Buenos Aires who calls himself the Rev. Prof. Leopold La Camera, "priest and benefactor," was recently arrested in Brooklyn on a charge of practicing medicine without a license. La Camera is a heavy advertiser in the foreign language newspapers.——Henry L. Tutenback of 7 McDonough Street was also arrested on a charge of illegal practice, according to reports.

NORTH CAROLINA

State Medical Meeting.—At the seventy-first annual session of the Medical Society of the State of North Carolina, April 15-17, at Raleigh, the following officers were elected for the ensuing year: president, Dr. Albert Anderson, Raleigh, and secretary-treasurer, Dr. Lewis B. McBrayer, Sanatorium. Dr. Royal S. Copeland, U. S. Senator for New York, gave an address. The next annual meeting will be held at Pinehurst.

Antituberculosis Work in North Carolina.—At the annual meeting of the North Carolina Tuberculosis Association in Salisbury, March 22, Dr. Lewis B. McBrayer, Sanatorium, was reelected secretary-treasurer. At the suggestion of Dr. Paul P. McCain, superintendent of the State Sanatorium for the Treatment of Tuberculosis, Sanatorium, it was voted that the sanatorium should take over the conduct of the tuberculosis clinics, established three years ago, and finance them from the extension funds of that institution, placing in the field an additional clinician.

Personal.—Dr. James B. Whittington has been appointed superintendent of the Memorial Hospital, Winston-Salem, effective June 1. He succeeds Dr. Thomas C. Redfern, who resigned.——Dr. John S. Hooker, Aurora, has been elected superintendent of health for Edgecombe County, with headquarters at Tarboro. He succeeds Dr. Ronald C. Gyles, who is practicing now in Siler City.——Dr. Baird U. Brooks was recently elected chairman of the Durham Board of Health. ——Dr. James B. Whittington has been appointed superintendent of the Memorial Hospital, Winston-Salem, to succeed Dr. Thomas C. Redfern, who resigned recently.

NORTH DAKOTA

State Meeting Date Changed.—The annual meeting of the North Dakota State Medical Association will be held at Bismarck, September 10-11, instead of in June, as formerly announced. Dr. James Grassick, Grand Forks, will preside.

State Board Appointments.—Dr. Louisa E. Boutelle, Clear Lake, head of the division of child hygiene and public health nursing of the state board of health, has resigned and will go to Pierre, S. D., to accept a similar position. Dr. M. M. Williams, Toronto, Canada, will succeed Dr. Boutelle.

OHIO

Smallpox in Jail.—Forty-three prisoners and all of the policemen of Lorain County jail were vaccinated, March 12, when a case of smallpox was discovered in the jail.

Fellowship in Surgery.—Dr. Frederick C. Hicks, president of the University of Cincinnati, has announced that Arthur R. Morgan, chairman of the board of directors of the institution, will establish a fellowship for graduate students of surgery at the university over a period of six years. The compensation will be $600 a year, and it will be known as the "Arthur R. Morgan Fellowship in Surgery." Announcement was also made that a citizen of Cincinnati who wishes to remain anonymous, has taken out a $25,000 life insurance policy, naming the university as beneficiary.

District Physicians Eliminated.—A resolution of the city board of health of Columbus, adopted April 7, does away with the system of district physicians for the treatment of the poor. This rule, effective May 1, eliminates nine physicians who have been receiving $60 a month for their services. The new system will require these cases to go to one of the Ohio State University dispensaries and will require persons confined to their houses to get in touch with the board of health for treatment. A nurse will be sent to investigate, and if a physician's services are needed, he will be paid $3 a visit.

OKLAHOMA

Practitioners Before the State Board.—The licenses of nearly 100 physicians practicing in Oklahoma are being considered by the state board in the survey of illegal and unethical practitioners. According to reports during the session, April 15-16, Dr. Herbert R. Clark, Tulsa, charged with advertising, was placed on probation on promise to refrain from practices held to be unethical. Dr. William C. Thaggard, Antioch, charged with drunkenness, to which he pleaded guilty, was reprimanded by the board and placed on probation. He must present evidence and affidavits as to his sobriety before quarterly meetings of the board for the next two years. Dr. Howell B. Guin, Tulsa, and Dr. N. J. Hamilton were before the board for alleged unethical practice.

PENNSYLVANIA

Postgraduate Course.—The University of Pittsburgh School of Medicine will offer a graduate course, beginning June 2 and continuing for three weeks. It will be devoted entirely to the interests of the general practitioner. For information address the dean's office.

Bedford Lectures.—The Third Bedford Lecture of the Pittsburgh College of Physicians was given at the Duquesne Club, April 24, by Dr. Frank Smithies, Chicago, who spoke on "The Origin and Development of Ethics in Medicine and Their Influence on Medical Practice."

Memorial Meeting for Dr. McCormick.—A special meeting of the Lycoming County Medical Society was held in the Common Council Chamber, City Hall, Williamsport, March 30, in honor of the late Dr. Horace G. McCormick of that city, who died, March 28. Dr. McCormick had been president of the society four different times.

Hospital News.—The contract has been let for the erection of a $55,000 addition to Columbia Hospital, Wilkinsburg. ——A drive will be conducted to raise $150,000 to erect a new building for the Charleroi-Monessen Hospital, Lock.—— The contract has been awarded for the erection of a nurses' home for St. Vincent's Hospital, Erie, at a cost of $100,000. ——The new Northeastern Hospital, Allegheny Avenue, Philadelphia, will be ready for occupancy in October.

Philadelphia

Personal.—Dr. Alexander Heron Davisson, president of the Philadelphia Association of Medical Examiners, addressed the Guardian Life Insurance Company of America at their anniversary dinner in Philadelphia, April 10.——Dr. George E. de Schweinitz, professor of ophthalmology, University of Pennsylvania, will be honored by the Société française d'ophthalmologie at its thirty-seventh congress to be held in Paris, in May. He will be welcomed by the entire body in the amphitheater of the French Academy of Medicine, where he will deliver an address, following which a commemorative plaque will be presented. A banquet will be given in his honor at which the minister of public instruction will preside. ——Dr. G. Elliot Smith, professor of anatomy at the University of London, England, addressed the Physiological Society of Philadelphia at the Zoological Laboratories, University of Pennsylvania, April 23, on "The Evolution of the Human Brain."

TENNESSEE

University Acquires New Site.—The University of Tennessee has contracted for the purchase of large tracts of ground on Dunlap and Union streets, Memphis, at a cost of more than $300,000. The dental and medical departments, now in Rogers Hall, will be transferred to these plots. Under the present program, in five years, the three schools will be able to care for 1,200 pupils.

TEXAS

Hospital Construction.—A new building will be erected at All Saints' Hospital, Fort Worth, at a cost of $150,000.—— The contract was let, April 14, for a new county hospital building at Hereford.

Medical Society Organized.—The Mitchell County Medical Society was organized in Colorado, April 5. Dr. Thomas A. Martin, Loraine, was elected president, and Dr. T. H. Barber, Colorado, vice president. There was a former Mitchell-Nolan County Medical Society, which disbanded some years ago.

South Texas District Medical Association.—At the annual meeting of the society in Galveston, April 9-11, Dr. Frank L. Barnes, Houston, was elected president; Dr. Frederick W. Aves, Galveston, vice president, and Dr. Willard R. Cooke, Galveston, secretary (reelected). The next meeting will be held in Houston.

VIRGINIA

Hospital News.—Winchester Memorial Hospital, Winchester, will erect a $200,000 building to replace the structure recently destroyed by fire.——A charter has been issued for the Northampton-Accomac Memorial Hospital now under construction at Nassawadox, as a memorial to the men from the eastern shore of Virginia who served in the World War. The structure will cost approximately $85,000.

Personal.—Dr. Thomas S. Hening, Jefferson, has been appointed judge of the Juvenile and Domestic Relations courts of Powhatan.——Dr. James K. Hall, Richmond, has been appointed by the governor to be a member of the special board of directors of the Central State Hospital, Petersburg. ——Dr. John Fulmer Bright has been elected mayor of Richmond.——Dr. C. Curtis Hudson has resigned as health officer of Richmond, and has accepted the position of city health officer of Greensboro, N. C.——Capt. James C. Pryor, M.D., Norfolk, has been appointed head of the U. S. Naval Medical School, Washington, D. C.

WISCONSIN

Personal.—Dr. John Osborn Polak, gynecologist, Long Island College Hospital, Brooklyn, N. Y., held a clinic at the Marquette University School of Medicine, Milwaukee, in the afternoon, April 11, and in the evening addressed the Medical Society of Milwaukee County on "The Types of Fibroid Tumors of the Uterus Which Require Treatment." ——Dr. M. F. Guyer, professor of zoology, University of

Wisconsin, gave the fifth in a series of lectures on "Heredity" under the auspices of the Mayo Foundation and its chapter of Sigma Xi, March 28.

WYOMING

State Medical Meeting.—The twenty-second annual meeting of the Wyoming State Medical Society will be held at Cody, June 17-19, under the presidency of Dr. Jesse D. Lewellen, Powell.

CANADA

McGill Alumni Banquet.—The McGill Alumni Association of Hamilton held a banquet, February 11, at which the guests of honor were Prof. Stephen Leacock and Edwin Embree of the Rockefeller Foundation. About 400 persons were present.

Public Health News.—The Medical Society of Owen Sound, Ont., has addressed a communication to the board of education asking that body to consider providing systematic treatment with iodin to school children between the ages of 10 and 14 as a prophylaxis against goiter.

Society News.—The Ontario health officers' convention will be held at the University of Toronto, May 20-22, under the presidency of Dr. Theodore A. Lomer, Ottawa.——The National Conference of Social Work will meet in Toronto, June 25-July 2. The program comprises ten divisions: 1. Children; 2. Delinquents and correction; 3. Health; 4. The family; 5. Industrial and economic problems; 6. Neighborhood and community life; 7. Mental hygiene; 8. Organization of social forces; 9. Public officials and administration; 10. The immigrant.

GENERAL

Bill to Make Silicosis Compensatory.—A bill has been introduced by the Workers' Health Bureau, supported by more than fifty labor unions, requiring that silicosis shall be included among compensable diseases in industry in the state of New York.

National Health Council.—Dr. Anthony J. Lanza has been appointed executive officer of the National Health Council to succeed Dr. Donald B. Armstrong. Dr. Lanza was for three years connected with the health organization of the commonwealth of Australia.

Fund for Paris Lighthouse.—A contribution of $12,000 toward the $590,000 American fund for the Paris Lighthouse for the Blind, founded by Mrs. Winifred Holt Mather, has recently been received. Elihu Root, chairman of the committee, announces that $90,000 is required to complete the purchase price of the lighthouse and an additional $500,000 as an endowment.

Legislation Urged for Recognition of Contract Surgeons.—Dr. Joseph Milton Heller of Washington, D. C., is active in urging legislation on behalf of pensions and honor recognition for contract surgeons, particularly those who served in previous wars. He writes that a bill is now in preparation to authorize hospitalization of veterans of all wars, and that contract surgeons are not included in such legislation, nor are they included in proposed pension legislation.

American Surgical Association Approves Vivisection Movement.—At the annual meeting of the American Surgical Association in Baltimore, April 18, it was unanimously resolved that "The association heartily approves of the formation of the Society of Friends of Medical Progress, to combat the efforts of the enemies of experimental research which has been the chief means of progress in all branches of medicine."

World Health Society.—At a meeting of the League of Nations in Geneva, April 16, at which medical representatives from twenty-one nations, including the United States, attended, it was voted to form an international society of public health officers. The objects of the society will be, first, to advance preventive medicine and public health administration from the international aspect; second, to exchange information on public health matters; third, to organize international conferences and the publication of reports and medical periodicals, and fourth, to promote international activities through a health organization league.

Reports Wanted on Accidents from Chlorinated Lime.—Reports are desired of cases of personal injury from chlorinated lime, with such detail as may be practicable as to the circumstances and results of the accidents. Recent legislation in several states requires chlorinated lime to be labelled poison, and pending legislation in Congress contemplates an extension of such labeling. On behalf of manufacturers and distributors of chlorinated lime, however, it is contended that accidents do not occur and that chlorinated lime is not poisonous. Reports should be addressed to the Bureau of Legal Medicine and Legislation, American Medical Association, 535 North Dearborn Street, Chicago, Ill.

National Committee for the Disabled.—This committee, affiliated with the Institute for Crippled and Disabled Men, has recently been organized, with R. C. Branion, 245 East Twenty-Third Street, New York City, as executive secretary. Its purpose is the development and direction of a national interest in the welfare of the disabled. The committee serves persons who are disabled through accident, diseases or congenital condition. A study of legislation will be made and steps taken toward the enactment of further legislation as may prove desirable. The budget for the first two years of work of the national committee is assured through the support of the Commonwealth Fund, the Laura Spellman Rockefeller Memorial and the trustees of the Institute for Crippled and Disabled Men.

Liquor Consumption.—The average annual consumption of whisky in the United States during the ten years prior to prohibition was 130,000,000 gallons. In the calendar year 1923 whisky withdrawn under government permits was 1,696,360 gallons. There are approximately 123,000 permit holders in the United States, the permits providing for the distribution and supervision of medicinal and industrial spirits. These figures, given out by the Prohibition Unit, are to show that government enforcement of prohibition is, in a large measure successful. In July, 1922, whisky, under government control, was stored in 297 distillery warehouses throughout the country. Today this number has been reduced to twenty-eight, which are centrally located, and this reduction has effected a saving of more than $300,000 annually to the government in guarding costs.

Bequests and Donations.—The following bequests and donations have recently been announced:

University of California, San Francisco, $1,000,000, by the will of Alexander F. Morrison, a lawyer of that city.

Georgia, for the establishment of a memorial hospital for women and children, $1,000,000, by Mrs. Williams, president of the Georgia, Florida and Alabama Railroad.

Hopewell Society of Brooklyn, the House of St. Giles the Cripple, the Society for the Relief of Destitute Blind and the New York Association for the Blind, each $106,683 (part outright and part as residue of the estate); Memorial Hospital, New York and St. Joseph's Hospital, Nashau, N. H., each $30,000, and the Servants for the Relief of Incurable Cancer, Trudeau Sanatorium, Trudeau Lake, N. Y., and the *Tribune* Fresh Air Fund, each $10,000, by the will of Mrs. Sarah J. Robinson.

St. Barnabas Hospital and the Sheltering Arms for Children, Minneapolis, each $450,000 from the estate of Edwin C. Whitney, a Canadian lumberman.

Fifth Avenue Hospital, New York, $30,000, and St. Luke's Hospital, New York, $15,000, under the will of Mrs. Georgie A. McDonald.

Sullivan County Hospital, Sullivan, Ind., $30,000, by the will of C. J. Sherman.

Greenwich (Conn.) Hospital, $10,000, under the will of the late Allan B. Forbes.

Holy Family Hospital, Laporte, Ind., $6,000, from the U. S. Slicing Machine Company.

Brooklyn Hebrew Hospital and Home for the Aged, Brooklyn, $5,000, by its auxiliary at the annual dinner.

Nursery and Child's Hospital, Baltimore, $1,000, for the upkeep of the Henry Bolte Memorial Ward and an additional $1,000; the Hospital for Consumptives of Maryland, Towson, $1,000, by the will of Mrs. Virginia C. Bolte.

The Presbyterian Hospital Dispensary and the United Hospital Fund, of New York, each $1,000, by the will of David Grant.

Report of Rockefeller Foundation.—The activities of the Rockefeller Foundation in 1923 were as follows, according to the president's annual report:

During the year 1923 the International Health Board, the China Medical Board and the Division of Medical Education of the Rockefeller Foundation supplied fellowship funds for 636 individuals in twenty-nine different countries; supported through the League of Nations interchange institutes for fifty-four public health officers from twenty-seven nations; arranged international visits of one commission and of twenty-four visiting professors; furnished emergency relief in the form of medical literature or laboratory equipment and supplies to institutions in fifteen European countries; sent scientific material to Japan after the earthquake and invited a group of Japanese medical scientists to use the laboratories of the Peking Union Medical College as guests of the institution; continued to contribute to schools or institutes of hygiene at Harvard, London, Prague, Warsaw and São Paulo, Brazil; cooperated in nurse training at Yale University and in France, Belgium, Brazil, China and the Philippines; accepted an invitation from Brazil to participate in a comprehensive attack upon yellow fever; had a share in demonstrations of malaria control in twelve American states and conducted malaria surveys or studies in the United States, Brazil, Australia, Nicaragua, Porto Rico, Salvador, the Philippine Islands and Palestine; either continued or began antihookworm work in conjunction with twenty governments in various parts of the world; contributed to 183 county health organizations in the United States, New Brunswick (Canada) and Brazil; continued a study of the medical schools of the world by visits to Belgium, Austria, Czechoslovakia, Germany, Hungary, Poland, Turkey, Hongkong, the Straits Settlements, Siam, Canada, England, Scotland, Wales, the Netherlands, Mexico and Colombia; offered to contribute £280,750 to the development of medical education in certain universities in the British Isles; gave $500,000 to the University of Alberta, and pledged $250,000 to the University of Pennsylvania toward buildings for anatomy and physiological chemistry; continued to support a modern medical school and teaching hospital in Peking; aided two other medical schools and twenty-five hospitals in China; assisted premedical education in several institutions in

China and agreed to do this also in Bangkok, Siam; lent representatives to governments and institutions for various types of counsel and service; continued to support a disease reporting service of the health section of the League of Nations; contributed to mental hygiene projects, demonstrations in dispensary administration, organization of dispensary work in France, and to other undertakings in the fields of public health and medical education.

New Prohibition Regulations.—Regulations controlling the enforcement of the National Prohibition Law have been revised and in their new form will become effective, May 1. They are known as "Regulations 60." The Prohibition Unit has been at work for several months revising the regulations, which is the first revision made since Jan. 17, 1920, when the Volstead law went into effect. While no important changes have been made in rules relating to physicians' prescriptions for intoxicating liquors, numerous minor changes have been made which more clearly define the authority of prohibition officials. A physician is described in the regulations to be "any person who has a license to practice medicine in any state, territory, or the District of Columbia." This definition does not include osteopaths, chiropractors or dentists. Among the minor changes with respect to physicians are the following:

Liquor administered by physicians must not be furnished under conditions constituting a sale.

Liquor obtained on prescription of a physician and bearing label required by the regulations may be lawfully possessed by the person for whom prescribed, or by a member of his household for administering to the patient.

In case of a grave and sudden emergency where great suffering or loss of life might result from delay incident to writing on the proper form of prescription blank or emergency prescription the details of the emergency, a physician may write in lieu thereof the words "grave emergency" and forward to the director, with the duplicate copy of such emergency prescription, a statement of the details of the emergency.

Bichlorid of mercury as modifying agent in the manufacture of medicated alcohol is eliminated. Instead of seven there are now four formulas for this purpose, as follows:

1. Formaldehyde, two parts; glycerin, two parts; alcohol 96 parts.
2. Carbolic acid, 1 dram; tannic acid, 1 dram; alcohol, 1 pint; water 1 pint.
3. Alum, one-half ounce; formaldehyde, 2 drams; camphor, 1 ounce; alcohol and water, each 1 pint.
4. Liquor Cresolis Compound, U. S. P., 10 c.c.; alcohol, 1,000 c.c.

FOREIGN

Plague in India.—Following recent reports (THE JOURNAL, April 19, p. 1275) we now learn from cable dispatches that 9,000 people died from the plague in the Punjab region during the last week. The outbreak is increasing and from forty to fifty deaths are reported daily from Lahore alone.

Turks Close Medical College.—Under orders from the ministry of public instruction at Angora, the medical department of the Constantinople College for Women has been closed by local authorities. The college, of which Prof. Wilfred Post of Princeton, N. J., is dean, has only recently completed a new medical building and laboratories.

Brazil Joins League Against Tuberculosis.—Complying with the recommendations of the national public health service in Brazil, the minister of the interior has enrolled Brazil on the list of members of the International Antituberculosis League. This association has been organized among the nations officially represented in the League of Nations.

International Otorhinolaryngologic Congress Postponed.—At a recent meeting of the Danish Otolaryngological Society it was decided, owing to the unsettled conditions in Europe, to postpone indefinitely the First International Congress of Otorhinolaryngology, which was to be held in Copenhagen in 1925. The society hopes, however, to renew the invitations at some future time.

Deaths in Other Countries

Dr. **J. K. A. Helm**, joint author with Dr. Mulder of the "Dutch-English Medical Vocabulary"; at Witbank, South Africa, of tuberculosis.——Dr. **Rai Bahadur Hira Lal**, lecturer in materia medica and in surgery at Punjab University, Lahore (India), aged 51.——**Sir Walter J. Buchanan**, in India for many years, where he edited the *Indian Medical Gazette*, at Dublin, Ireland, March 23.——Dr. **P. Guillon**, formerly president of the Paris Société de médecine.——Dr. **C. Gariel**, emeritus professor at the Paris Faculté de médecine, aged 83.——Dr. **F. Menuet**, radiologist and professor at the Ecole de médecine at Tours, aged 44.——Dr. **G. Kaczander**, professor of anatomy at the University of Camerino.——Dr. **Carlos Cortés**, former chief of the Mexican army medical department.——Drs. **Jesús Moncayo** and **E. Montero** of Mexico City were victims of street accidents in March. Dr. Montero was inspector of the public health department.——Dr. **Baptista Britto**, director of the regional hospital at Viçosa, Brazil.

Government Services

Hospital Authorized

Pursuant to instructions of the Secretary of War, the organization of Evacuation Hospital No. 65 (Burlington Hospital Unit, Burlington, Iowa), organized reserves, has been authorized.

U. S. Public Health Service Needs Physicians

The U. S. Public Health Service has, from time to time, vacancies which are worthy of consideration by young physicians interested in public health work. In addition to public health matters, the service operates twenty-five hospitals and 119 outpatient dispensaries at which more than 136,000 patients were treated last year. Candidates for vacancies in the regular corps of the U. S. Public Health Service must be between 23 and 32 years of age and have had one year of intern work or two years of practice since graduation. They are offered permanent positions, a variety of work, progressive promotions and retirement in case of disability. Detailed information regarding the service will be furnished on application to the Surgeon General, Washington, D. C.

New Consultants for Veterans' Bureau

Thirty of the country's leading physicians have been invited by Director Hines of the Veterans' Bureau to act as consultants for the purpose of building a permanent high grade medical personnel in that bureau. The physicians chosen represent experts on tuberculosis, neuropsychiatry, general medicine and surgery, hospital planning and construction, and dispensaries. In making the announcement, Director Hines stated that Congress will be asked to pass legislation that will eradicate inequalities now existing in the medical personnel of the Veterans' Bureau and provide pay and living incentives that will attract the highest grade of medical skill to the bureau service.

The following consultants in tuberculosis were selected: Dr. Edward R. Baldin, Saranac Lake, N. Y.; Dr. William L. Dunn, Asheville, N. C.; Dr. Kennon Dunham, Cincinnati; Dr. Roy Adams, Washington, D. C.; Dr. James A. Miller, New York; and Dr. Francis M. Pottenger, Monrovia, Calif.

As consultants in neuropsychiatry, General Hines invited Dr. William A. White, superintendent, St. Elizabeth's Hospital, Washington, D. C.; Dr. Albert M. Barrett, superintendent, State Psychopathic Hospital, Ann Arbor, Mich.; Dr. William F. Lorenz, Wisconsin Psychiatric Institution, Madison, Wis; Dr. C. Macafie Campbell, medical director, Boston Psychopathic Hospital, Boston; Dr. Glenn E. Myers, Los Angeles; Dr. Sidney Isaac Schwab, St. Louis; Dr. Thomas Salmon, New York, and Dr. Daniel Joseph McCarthy, Philadelphia.

In general medicine and surgery, the director selected Dr. Frank Billings, Chicago; Dr. George Morris Piersoll, Philadelphia; Drs. W. J. and Charles H. Mayo, Mayo Clinic, Rochester, Minn.; Dr. George W. Crile, Cleveland; Dr. Lewellys F. Barker, Johns Hopkins University, Baltimore; Dr. Simon Flexner, Rockefeller Institute, New York; Dr. Ray Lyman Wilbur, president, Stanford University, Palo Alto, Calif., and Dr. Joel Ernest Goldthwaite, Boston.

General Hines selected the following consultants in hospital planning and construction: Dr. George H. Kirby, Psychiatric Institute, Ward's Island, N. Y.; Dr. S. S. Goldwater, superintendent, Mount Sinai Hospital, New York; Dr. M. T. MacEachern, Chicago; Dr. Winford H. Smith, Johns Hopkins University, Baltimore; Dr. L. H. Burlingham, St. Louis, and Dr. W. C. Rapplaye, New Haven Hospital, New Haven, Conn.

As consultants in dispensaries and outpatient clinics, he has selected Mr. Michael M. Davis, New York; Dr. Douglas A. Thom, Boston, and Dr. Livingston Farrand, president, Cornell University, Ithaca, N. Y.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 31, 1924.

The London School of Hygiene

The constitution of the London School of Hygiene, the establishment of which is due to the munificent gift of the Rockefeller Foundation, has been arranged. The scope of the school is very wide; it includes the maintenance of health and the prevention of disease not only in temperate but also in arctic and tropical climates. Tropical hygiene we already have, of course, but arctic hygiene is a novelty. The school will consist of six departments: (1) applied physics, physiology and principles of hygiene; (2) chemistry and biochemistry; (3) immunology; (4) medical zoology, parasitology and comparative pathology; (5) epidemiology and statistics; (6) the principles and practice of preventive medicine. Dr. Andrew Balfour, an authority on tropical medicine, has been appointed director. There are other schools of hygiene in this country, in particular those which prepare candidates for the diploma of health officer, and it is hoped that cooperation with them will be insured. The court of governors of the new school is to consist of representatives of a large number of institutions, including the ministry of health, the ministry of agriculture, the senate of the University of London, the Seamen's Hospital Society, the admiralty, the war office, the air service, the Lister Institute, the British Medical Association, and the Society of Medical Officers of Health. It is thought that the London School of Tropical Medicine will be amalgamated with the new school, and that the latter will be a recognized school of the University of London.

Obtaining the Increased Payment to Panel Physicians

In previous letters, it was pointed out that the friendly societies objected to any increased grant from their accumulated funds for the payment of panel physicians, and that the money would have to be found by the overburdened taxpayer. The minister of health has found an ingenious way out of the difficulty which, though it remains true that the money was ultimately in large part derived from the taxpayer, avoids making any increased demand on him. It has been ascertained that since 1912 the sum of $30,000,000 has accumulated from the sale of unclaimed insurance stamps. The taxation for the panel scheme is carried out by the affixing of stamps to the insured persons' cards. Evidently, stamps to this huge amount have been bought and destroyed or in some other way not put to use. The increased cost is to be found by drawing on this accumulation.

Exhibits of the Ministry of Health at the British Empire Exhibition

The ministry of health, like other government departments, has prepared a number of exhibits for the coming great British Empire Exhibition at Wembley, which should prove interesting and instructive not only to local authorities and their officers, but also to visitors from the dominions and other countries. Housing and town planning, burning topics at present in this country, will form the most important part of the contribution by the ministry of health. Photographs and plans illustrating the layout of approved housing estates and the design of the houses have been selected from different parts of the country, so as to show the difference in design according to local conditions and the available materials. Two large town planning models will be placed side by side, one representing a common type of industrial town devoid of intelligent arrangement, inconvenient and smoke-blackened; the other showing what can be accomplished by foresight and skilled design on the same site. There will be also a set of the maps required for a town-planning scheme, and a perspective plan showing what Margate, for example, is expected to look like at some future date. The map is also to be shown indicating the regions in England and Wales where town-planning schemes are being carried out.

Pensions Administration: Improved Conditions for Pensioners

Mr. F. O. Roberts, minister of pensions, in a recent speech, has described the changes that have been introduced by the labor government for the benefit of war pensioners. One of the first things he did was to issue an instruction to all members of the staff, including medical boards, directing them to treat all claims with the utmost sympathy and consideration and to bear in mind that in any case in which there was a doubt the benefit was to be given to the claimant. As to final awards, he had arranged that in all cases set aside the officer or man concerned will be immediately examined by the ministry of pensions medical board, and, if his condition justifies it, a further award of pension may be given. Particular attention has been paid to dependents' pensions, which created such grave concern in all parts of the country. In no case will the pension be reduced without the beneficiary being given fourteen days to state his or her version of the facts Secondly, every person whose pension has been reduced in the past will have the fullest opportunity of appealing against the reduction, in the first instance to the war pensions committee and, in the second, to the ministry. Careful consideration has been given to the whole question of pensions to parents. Local pensions committees are being brought into direct contact with the ministry itself.

Radiotherapy in Cancer

A second monograph on cancer, dealing with the effects of radium and roentgen rays on normal and cancerous tissues, has been prepared by the departmental committee on cancer, and circulated to local authorities by the ministry of health. The committee has brought to a focus the position of modern knowledge and practice in regard to different aspects of cancer, its causation, prevention and treatment. It is obtaining reviews by the work of its own members, by special subcommittees, and in other ways, drawing freely on the assistance of experts. The present memorandum, contributed by Professor Lazarus-Barlow, surveys only one section of the wide field of research. It shows that experience of treatment by irradiation is opening up hopeful possibilities. The fact that, by virtue of the efficacy of irradiation, rodent cancer is now expressly excluded from consideration when the subject is under discussion is itself of great moment. Even though it be granted that rodent cancer differs in many respects, and not least in its danger to life, from other cancers, its malignant nature is undoubted. So, too, the remarkable results that up to a point follow the irradiation of lymphosarcoma, and to a less degree occur with many other varieties of growth, are an augury that with further advances and improved technic better results will be obtained. Probably there will always be a class of case resistant to radiologic treatment for one reason or another. But it is fair to hope that numerically this class will become smaller. The mental attitude of those most interested in radiotherapy has changed. Not only do they recognize that the radiations themselves, the cancerous conditions on which they cause those rays to act, and the influence of the rays on the normal tissues of the patient are far more complicated than was suspected, but also they envisage irradiation in a fundamentally different way. At first the rays were regarded in

the light of a specialized variety of caustic, inferior to many caustics in the surgeon's armamentarium. Then it was seen that cells vary in radiosensibility, and a directly selective destruction of cancer cells was the goal, but was barely attainable by reason of the insufficient delicacy of our methods. Now has arisen the conception of radiations as an agent whereby the cancer cells are altered so that they evoke, within the patient's body and through the agency of his normal tissues, an increased production of some substance or substances antagonistic to themselves. The formation of such antagonistic substances within the patient, on this view, characterizes every case of cancer, and the course of the disease varies according to the degree in which they are present. In all but the rarest instances, however, they are insufficient, so that the cancerous process sooner or later gains and maintains the upper hand and leads to death. If by means of subjecting cancer cells to radiations one is able to imitate and enhance this natural process, the hope lies near that a production of antagonistic substances would be induced sufficient to hold the cancerous growth in check, then gain the upper hand, and ultimately destroy the cancer cells themselves.

Alcohol and the Human Body

When the advisory committee appointed by the central control board (liquor traffic) published a report in 1918 on the effect of alcohol on the human organism, this was generally regarded as a temperate and scientific contribution to a difficult problem. An enlarged and revised edition of "Alcohol: Its Action on the Human Organism" has just been issued by the government, containing new evidence as supplied by recent research. Among many interesting results yielded by this research is the fact that the rate at which alcohol is absorbed into the blood stream can be modified by the conditions under which alcoholic beverages are drunk. The slower the absorption, the less the degree of inebriation. Food in the stomach acts as a dilution, but certain kinds of food exercise a greater effect than others. Milk, or bread and milk, taken two and a half hours before alcohol, caused absorption of alcohol in the blood to be slower than was observed under any other experimental conditions. Meat, so frequently taken with alcohol, has only a slight influence on absorption. Experiments on the effect of alcohol on speed and accuracy in typewriting showed that the disturbing influence of the drug was much diminished when alcohol was taken with or soon after food. The popular belief that malted liquors are good for nursing mothers is stated not to be confirmed by scientific evidence. Although alcohol is described in the report as a drug, it is not denied that it is a food in the sense of a fuel that the body can use. But when wine aids toward recovery after illness, this is held to be chiefly because it makes the patient more contented, and improves the appetite for ordinary foods. The secret of the charm of alcohol is the sense it creates of careless well-being or of bodily and mental comfort. The bodily sensation is due to a flushing of the skin with blood, which abolishes all sense of chill. It blunts the sensibility to small aches and pains, which, except for those enjoying perfect health, depress humanity. Discussing the value of alcohol as a medicine, the report remarks that its use in hospitals has been much reduced without injury to patients, and, in some, abandoned altogether. The only point at issue now is whether its use should not be still further curtailed. Alcohol is not, like quinin, a specific cure for any disease. The popular opinion that alcohol in excess is more dangerous to people of sedentary habits is not confirmed, for it is stated in the report that active exercise creates an increasing demand for the drug as a supposed aid to labor. The effect of the daily glass of beer or spirits on length of life is discussed, but the extreme difficulty of forming a scientific conclusion is pointed out. The experience of one insurance company confirms the view that total abstainers live longer than nonabstainers, but other influences besides alcohol have to be considered. The general conclusion is that alcoholic beverages are not necessary for healthy life, that they should be taken diluted and with food, and that they are definitely dangerous for children and for most persons of unstable nervous system.

Educating Defective Children

The facilities provided by the London County Council for the education of defective children are most elaborate. Sir William Hamer, health officer and school medical officer, has published a pamphlet on the subject for the instruction of almoners and others. Among the chief facilities for children who are unable to benefit from attendance at the ordinary elementary schools are special schools, which include day and residential schools for the blind and deaf, day schools for the mentally and physically defective, and day and residential open air schools. The council also secures, for the epileptic, places in residential schools in the country or at the seaside. Special schools, numbering nearly 200 form part of the London education service.

PARIS

(From Our Regular Correspondent)

March 28, 1924.

Prostitution in Paris

Attention was called previously to the decrease of syphilis in the large cities of France (The Journal, March 29, 1924, p. 1059). Statistics recently published by Dr. L. Bizard, chief physician of the Dispensaire de salubrité de la préfecture de police, point to the same conclusion. Since 1922, syphilis has decreased considerably among prostitutes:

Years	Number of Registered Prostitutes Visited	Number of Cases of Syphilis	Number of Clandestine Prostitutes Visited	Number of Cases of Syphilis	Total Cases of Syphilis
1917.....	5,283	298	4,842	385	683
1918.....	5,317	353	4,947	314	667
1919.....	5,295	269	4,280	289	558
1920.....	5,165	317	2,947	235	552
1921.....	4,813	243	2,316	205	448
1922.....	4,355	179	2,530	146	325
1923.....	4,355	129	2,553	118	247

Bizard emphasizes the need of introducing record books for prostitutes. These should contain a history of the woman's ailments, an account of the treatment, the results of Wassermann tests made at regular intervals, the findings of bacteriologic examinations, and an outline of the principles of hygiene and sanitation, and they should be signed by the physician at each visit.

Instruction in Hygiene

At a recent meeting of the Societé de médecine publique, Dr. E. Marchoux reviewed the activities of the Hygiène par l'exemple, a society founded two years ago. Convinced that the practical application of hygienic principles can accomplish results, the members of this society set for themselves certain goals which they hope to reach through force of example. They plan: (1) to introduce among the people personal habits of order and cleanliness; (2) to show the danger to public health of many practices common among food handlers; (3) to establish district sanitary supervision, and make known its favorable influence on the normal progress of pregnancy, on the regular development of children, and on the treatment of patients.

To inculcate habits of personal cleanliness, the society endeavors to influence primarily the school children. They are required to keep their face and hands clean, and their teeth brushed. The pupils themselves are required to polish

the waxed floors and to whitewash or calcimine the walls when they need it. These hygienic duties are not supervised by the teacher, but by pupils chosen by their classmates by secret ballot. Four new supervisors, elected every term, take turns in serving for a week at a time. They must enforce the regulations, which comprise seventeen articles known to all, from which no one may deviate. Every infraction entails a penalty. These methods of teaching hygiene have been introduced in seventy-three schools.

The society Hygiène par l'exemple not only teaches pupils to avoid contagion by cleanly habits, but also watches over the development of the body by exercise and life in the open. It urges the creation of open-air schools, and, if these are not practical, takes the initiative in establishing schools in which the windows on one side of the rooms are kept open summer and winter. It has been difficult to get the teachers to accept these innovations, convinced as they were of the danger of drafts. But teachers who have given these methods a trial recognize that they and their pupils thrive under them.

A New Medical Journal

The Ligue contre le trachome, with headquarters in the Pasteur Institute, Paris, has founded the *Revue du trachome*, the first number of which has just been issued. This review will be a quarterly, and will contain papers presented at the scientific assemblies of the league, abstracts of articles pertaining to trachoma, and information regarding the campaign against this disease. Members of the league will receive free copies. The subscription price is 20 francs for France and Belgium; single copies are 6 francs.

Monument to Medical Heroes

The Society of Friends of the Faculté de médecine of Paris, the secretary of which is Professor Chauffard, has decided to erect a monument in memory of the physicians and students of that medical school who died for their country in the recent war. The monument will be placed in the Hall of the Immortals at the school and will be dedicated next November. In order to carry out this expression of national gratitude, the society requests the aid of the medical profession. Subscriptions may be sent to M. Masson, 120 boulevard Saint-Germain, Paris-VIe.

Suppression of the Ministry of Public Health

Owing to changes introduced by Minister Poincaré, the number of ministries has been reduced from fourteen to thirteen, the ministry of public health having been suppressed. The work of the ministry of public health will be divided between the minister of labor and the minister of the interior.

Death of Prof. C. M. Gariel

Dr. Gariel, former professor of physics in the medical department of the University of Paris, has died at the age of 83. He had been previously chief engineer of bridges and highways, and professor of physics and chemistry at the Ecole des ponts et chaussées. He was assigned the chair of medical physics at the University of Paris in 1887. In 1882 he was elected a member of the Academy of Medicine. He published numerous scientific writings, mainly on electricity and optics.

Personal

At its last session, the Academy of Medicine took up the election of two foreign correspondents. On the first ballot these men were elected: Dr. Fano, professor of physiology at the University of Rome; Dr. Schäfer, professor of physiology at the University of Edinburgh. Also these men were candidates: Dr. Escomel of Arequipa, Peru; Dr. Madsen of Copenhagen, Denmark; Dr. Rollier of Leysin, Switzerland, and Dr. Sherrington of Oxford, England.

BELGIUM

(From Our Regular Correspondent)

March 24, 1924.

Infantile Tetany and Ultraviolet Rays

Dr. Fonteyne presented an interesting case before the Société belge de pédiatrie. The patient was an infant, aged 8 months, born in exceedingly insanitary surroundings and brought up without hygienic care. There were marked signs of tetany; Chvostek's sign was present; there were obstetrician's hands and the feet were in extension. Treatment with calcium and phosphorated oil brought no improvement. The infant then was treated by means of the quartz mercury vapor lamp, and after six sittings all symptoms disappeared.

Organization of Public Health

During the war, an attempt was made in many countries to centralize in one department all questions pertaining to public health. Many will recall the discussion in 1917, which preceded the organization in England of a ministry of public health. France soon followed England's example. Austria, in 1916, grouped all public health services under one ministerial authority. I will give an account of the reorganization of the public health service in Belgium and state how the various societies that make up the central organization function. Up to 1884, everything that had to do with public and social hygiene was in the hands of the administration of provincial and communal affairs. It was not until 1906 that a separate and distinct organization was finally incorporated with the department of the interior as the ministry of the interior and public health. It has control of legislation concerning the practice of medicine; it supervises the medical and pharmaceutic professions, also midwives and nurses. It controls sanitary legislation both as regards our international relations and at home. It is responsible for public hygiene, the prophylaxis of transmissible disease, the crusades against social disease and for hygiene pertaining to infants. Its activities extend to industrial plants and to the control of the sale of foodstuffs. It maintains an inspection service and a laboratory for the analysis of foodstuffs. Further duties of this department include the hygienic inspection of hospitals and municipal shelters, and the allotment of subsidies for the construction of quarantine stations. It handles legislation affecting working men's homes; the distribution of drinking fountains and public baths; the construction of drains and sewers, and the creation of disinfection stations and cemeteries. This department supervises also medical congresses and exhibitions pertaining to hygiene.

The principal organizations whose functions have been taken over wholly or in part by the ministry of the interior and public health are: The Royal Academy of Medicine, the Superior Council of Hygiene, the National Society of Child Welfare, the Association of the Red Cross of Belgium, the Pharmacopeia Commission, the Commission on Cancer Research, the Provincial Medical Commission, the Sanitary Commissions of the Ports, the Control Commission on Vaccination, the Committees of Patronage on Workmen's Dwellings and Institutions of Public Welfare, the National Society for the Erection of Drinking Fountains, the Inspection of Public Health, the State Disinfection Services, the Inspection of Pharmacies, and the State Vaccination Bureau.

Specialization in Medicine

Several attempts have been made in Belgium to secure official control of specialization in medicine. Last year the Royal Academy of Medicine took up this question, and now the minister of the interior and public health has requested the academy to give an opinion on the granting of a university diploma for medical specialties. The question will therefore be taken up officially by the academy, which at the same

time, and also at the minister's request, will give an opinion on the question of creating a degree of doctor of dental science.

The Number of Physicians in Belgium

A report of the public health administration contains information on the number of physicians in Belgium. From 1913 to 1921, the number decreased by ninety-two. In the four largest cities there has been a slight increase. In Brussels an increase of thirty-seven is recorded. There has likewise been an increase in other towns of more than 10,000 inhabitants, in the provinces of Brabant and Antwerp. The number of physicians in towns and communities of less than 10,000 inhabitants has decreased by 147. The numbers of dentists in the four largest cities has decreased by four. In other towns of more than 10,000 inhabitants the decrease is nine. However, in towns and communities of less than 10,000 inhabitants there has been an increase of eight. For Belgium as a whole there has been a decrease of five.

Inspection of Foodstuffs

During times like these, when the cost of the necessaries of life is very great, it is necessary that food inspectors be more strict than ever, in order to prevent frauds. Government inspectors are charged with discovering infractions of the federal regulations. They have the right to enter stores to collect samples of food that look suspicious. Foods that they recognize as manifestly adulterated, they may confiscate; as well as substances used in the preparation of foods, provided such use appears harmful. Inspectors should collect at least two samples, in order to have counter-tests made, one being sent to the analyst, and the other to the clerk of the court. It is sometimes well to leave a third sample with the merchant for his protection.

The minister of the interior and public health has reported the principal adulterations found. Meats contain frequently preservatives, especially sodium sulphite, and occasionally starch. Bologna sausage contains coloring matter or an excess of starch. Butter and margarin often contain boric acid, and coffee beans are coated with ferric oxid, gums, dextrin or sirupy substances.

Memorial Meeting

The University of Liége held recently a special assembly in commemoration of Walthère Spring, who, for many years, was professor of chemistry at the Faculté de médecine of Liége. Minister Nolf spoke of him as the founder of the Institute of Chemistry at the University of Liége. Professor Swaen of the Faculté de médecine sketched his career as a chemist, and presented to the university a medallion reflecting his rather sad cast of countenance.

MADRID

(From Our Regular Correspondent)

March 11, 1924.

The Spanish Anticancer League

The Spanish League Against Cancer was organized with much solemnity, March 8. The government assigned a splendid building to the Cancer Institute, the president of which is the king himself. A meeting of prominent physicians and public men, attended also by the most conspicuous members of the army, was held to organize the society. Its purpose is to interest the public in the treatment and early diagnosis of cancer by methods similar to those employed in the campaign against tuberculosis and venereal diseases. The officers of the society will be at the Cancer Institute, Pabellón Príncipe de Asturias, Edificio de Parisiana, Madrid.

Social Isolation of Madrid Physicians

The small number of physicians who attended the organization of the Spanish League Against Cancer, and the fact that these were the same always found at medical assemblies and social and scientific meetings, have caused an inquiry. One physician has offered the explanation that not more than a dozen physicians now show an interest in medicosocial work. The former cooperative medicosocial life has disappeared from Madrid. As soon as a speaker finishes his paper, he leaves the meeting without even extending the courtesy of listening to the next man on the program. When the work is of an altruistic nature, as the support of the Home for Physicians' Orphans or the rendering of a tribute to some former medical leader, nobody attends. This medical isolation and mutual jealousy reached a high point last year at the meeting held in honor of Jenner and Balmis in the National Academy of Medicine. Although the king presided, almost the only persons in attendance were families of physicians on the program. There were hardly any physicians in the audience. The lectures given by Fuchs were attended by sixteen physicians, although there are a great many ophthalmologists in Madrid. The meeting called by the Medical Society of Madrid to discuss the new medical taxes was attended by scarcely half a dozen of the more than 1,000 practitioners in Madrid.

Dr. Cortezo, president of the National Academy of Medicine, president of the Council of State, and the author of two books of medical reminiscences, was persuaded by the Madrid Medical Atheneum to give a lecture on "Medicine in Madrid in the Last Century." The only persons who attended this lecture were the president of the society, about six of the 400 members of the atheneum, and six members of the Academy of Medicine. This lecture was very entertaining. Dr. Cortezo discussed the different medical and therapeutic systems in vogue in the last century.

Echinococcus Cysts of the Lung

Professor Finochietto of Buenos Aires gave a lecture before the National Academy of Medicine in which he described his experience with hydatid cysts of the lung and their surgical treatment. The therapeutic decision depends on a diagnosis that includes roentgenography, complement fixation, eosinophilia and intradermal tests. The last is one of the most dependable, and is positive in more than 99 per cent. of the cases. Finochietto, before operating, submits the patient to medical treatment, comprising sodium thiosulphate (hyposulphite) and turpentine inhalations; then he attempts to locate the cyst. The roentgenograms must be taken with the patient in several positions. One of the greatest mistakes is to approach the cyst from a place that is not the nearest. In case of error, it is better to make a new incision. The anesthesia is always local. As to the operation, it is sufficient to remove one rib, and, in superficial cases, it may be sufficient to open the interspace. When there is doubt, the incision should be in the interspace, where it may be extended to the rib above or below, when necessary. The cyst may have caused adhesions between both pleural surfaces. If there are no adhesions, there is little induration and immobility of the tissues. In case of such adhesions, a blue patch is seen. If the lung parenchyma shows no sign at all, Finochietto inserts the finger a few inches upward under the intercostal cartilage, to bring about what he calls an extrapleural pneumothorax. This completed, the parietal pleura is pushed against the lung, and soon the cyst plainly shows its rounded surface. This method was devised by Triftia in 1895. If there are no adhesions, once the cyst is reached, the pleura is entered with the danger of an operative pneumothorax. The high and low pressure chambers have not been tried in Argentina, and are still waiting for a simpler and less expensive method. They do not use Bier's intratracheal insufflation for fear it might prove a handicap when fluids are expelled through the air passages. Numerous reports of surgical pneumothorax

unattended by serious results have popularized the open treatment of lung injuries. An exception is made in the case of wounds, because of the possibility of infection. Otherwise, the sudden entrance of air into the pleura and the high pressure should be favorable, through the reduction of the caliber of vessels and the occurrence of a spontaneous hemostasis. To prevent the rupture of the infected cyst, through the retraction caused by the entrance of air, Finochietto passes a figure of eight catgut suture through the parietal pleura and the parenchyma of the lung, thus bringing about perfect occlusion. To remove the cyst a simple opening may be used; but, if the growth is deep seated, there is danger of hemorrhage, suffocation and bronchopneumonia. Finochietto therefore resorts to aspiration with an instrument that he made for this purpose. A characteristic of this aspirator is a uniform caliber of the trocar (18 mm.). When there is infection, good drainage is essential. The end of the tube should not reach the cyst wall, for there is a possibility of hemorrhages from ulceration, as happened in one of Finochietto's cases. The gauze dressing should be very thick, and bronchial disinfectants, such as turpentine inhalations, should be used. In uninfected cysts, the operation may end with complete closure without drainage, as Professor Posadas reported in seventeen cases in 1898. To do this, the cyst must be sterile and the roentgenogram show a regular outline with no peripheral injuries. The washings must return completely clear, or closure is not justified, unless there is full communication with a bronchus, in the lower part of the cyst, which would provide a natural drainage.

A Spanish Scientific Film

Dr. Luis Recasens and Torres have produced an interesting film of the fecundation, migration and growth of the ovum. The film was prepared as a thesis in a competitive examination for the chair of obstetrics, and it simplifies the study of the subject. It was first shown in the Madrid Medical School and the National Academy of Medicine, but the sudden awakening of scientific interest among laymen is surprising. Women are represented largely in all scientific lectures, and in medical schools the number of female students is increasing enormously. This is auspicious as far as culture is concerned, but the steady increase in students cannot help but change professional life for the worse.

Lottery and Public Health

In the previous letter (THE JOURNAL, March 1, p. 732) it was mentioned that, in some provinces, lotteries are held to bear the expense of infant welfare laws. The Army Directory has now authorized holding a special lottery, which will bring in 12,000,000 pesetas ($1,560,000) the net product of which will be divided into two parts, one for the Red Cross Society, the other to be divided equally among the National Tuberculosis Association and two societies still to be organized for the control of leprosy and malaria. The draft will take place, October 12, the so-called Race Day.

Public Health Exhibition

A public health exhibition has been opened in Madrid in the skating rink, which will continue until the end of this month. It is to be commended as the first step toward public health improvement, but the enterprise is rather disappointing, as there are few commercial exhibits and even fewer scientific demonstrations. The organizers have made arrangements for popular lectures by prominent physicians. We hope that, in future events of this kind, countries such as the United States may exhibit numerous products that have a place in a public health exhibition. This propaganda will eventually bear fruit, for public health is advancing in Spain. There is a large field here pertaining to water supplies, public baths, sewerage systems and similar enterprises.

PRAGUE

(From Our Regular Correspondent)

April 3, 1924.

Death of Prof. Jan Deyl

The medical profession of the Czechoslovak republic has suffered a great loss in the death of Prof. Jan Deyl of the Prague Medical School. Born in 1855, he studied at the medical schools in Prague and Vienna, graduating in 1880. He became assistant to the ophthalmologist Prof. J. Schoebl, and in 1887 joined the teaching staff of the medical faculty of Prague. After the death of Professor Schoebl he was appointed to the chair of ophthalmology in 1902, which position he had held ever since. In spite of financial difficulties, his department became famous, and in 1922 more than 22,000 cases were treated in the outpatient clinic. The department is a center of scientific research. In 1898, Professor Deyl based his hypothesis on the effects on the pulse of pressure on the retinal artery, and explained the cause of cleavage of the macula lutea. He carried on investigations on the embryology of the eye, going to the zoological station in Bergen, Norway, to study on suitable material. Lately he studied tuberculous and syphilitic conditions of the eye. He wrote a textbook of ophthalmology which had just gone to press before he died. Besides his activities at the medical school, he founded a society for the care of the blind, and endowed from his own means a home for the blind in Prague.

Tuberculosis Specialists in Czechoslovakia

A group of thirteen physicians specializing in tuberculosis visited the Czechoslovak republic under the auspices of the Health Committee of the League of Nations. The group represented physicians from Austria, Belgium, Bulgaria, Denmark, England, Finland, France, Hungary, Jugoslavia and Russia. A series of lectures was given to the group by the representatives of the central health authorities as well as private health organizations engaged in the campaign against tuberculosis in Czechoslovakia. Having visited the antituberculosis institutions in Prague and the vicinity, the group left for the High Tatra Mountains, where there are a number of tuberculosis sanatoriums and where recently a branch of the Prague Society for Research in Tuberculosis has been established. The group will spend altogether three months studying the campaign against tuberculosis on the European continent and in England.

New Medical School at Brno

Brno is rapidly developing into an important center for medical education. The first doctors of medicine who have passed all their examinations at the Brno Medical School have just graduated, and a Czech medical association has been founded in Brno. Since the new medical school was established in 1919, there have been a number of diplomas granted students who started their studies elsewhere. The next year will see the graduation of students who began their studies in Brno and went through all the curriculum and examinations there. The foundation of the Czech Medical Association in Brno means an important step toward the organization of postgraduate medical education in this city.

Visit of Levaditi to Prague

Prof. Constantin Levaditi of the Paris Pasteur Institute has visited the medical faculties of the Czechoslovak republic, having been invited by the Czech Medical Association and the Czechoslovak Dermatologic Society. He lectured in Prague before the Czech Medical Association on the neurotropic viruses, and before the Czechoslovak Dermatologic Society on bismuth therapy. His first lecture was especially interesting because he attempted to form a new group of

infectious diseases which he calls ectodermoses neurotropes, and which includes smallpox, herpes labialis, epidemic encephalitis, rabies and poliomyelitis. He based his classification on the fact that lesions by these viruses can be produced on the skin and cornea, and in the brain and medulla, the affinity for the skin being greatest in smallpox, while poliomyelitis has the strongest affinity for nervous tissue. All tissues attacked by this group of viruses come from the ectoderm, as compared with diseases produced by bacteria, which have a pronounced affinity to the mesodermal tissues. Professor Levaditi visited also the new medical school in Brno, where he delivered another lecture on bismuth therapy.

BERLIN

(From Our Regular Correspondent)

March 29, 1924.

The Conflict with the Berlin Public Health Societies

The attempts of the health insurance societies to secure adequate medical treatment for their members having failed, their executive committee has finally consented to enter into negotiations with the representatives of the Berlin medical profession. The results of this rapprochement will be available shortly.

The Werner Siemens Institute for Roentgenographic Research

On the grounds of the municipal hospital of Moabit in Berlin, a roentgenographic institute has been established through the generosity of the city of Berlin. The work was accomplished chiefly through Dr. Klemperer, director of the municipal hospital in Moabit, and Dr. Rabnow, municipal medical consultant. The new institute is housed in three unpretentious barracks. In the south wing are the administration department, a roentgenographic and histologic laboratory, and a demonstration room, in which, from time to time, talks on progress in roentgenographic research will be given. The middle structure, connected by a corridor with the administration department, is used for roentgenotherapy. A therapeutic apparatus with oil type inductorium suffices for applying the ordinary deep roentgen-ray therapy. In addition to the ordinary therapeutic apparatus there is a high power apparatus, which is the outgrowth of roentgen-ray technic in recent years. The high tension apparatus occupies a special room, to prevent accidents through accidental contacts. The high power apparatus furnishes a high tension, almost constant, continuous current. The apparatus is distinguished from all other types of roentgenographic therapeutic apparatus by its entirely noiseless action. Owing to the fact that no nitrous gases can form, the air in the machine room and likewise in the treatment room remains pure. The plant in Moabit is so arranged that treatment can be given simultaneously to two patients. The tubes can be employed at a tension of 250,000 volts of 8 milliamperes each. The increased utilization of rayage that is effected by this apparatus makes it possible to reduce the length of the sittings accordingly. Absolutely certain protection against scattering rays is afforded by two lead chambers extending into the irradiation space. They protect the patients against irradiation, and make it possible for the physicians and the nurses to move about freely, near the patients, yet thoroughly protected against high tension roentgen rays. The air in the treatment room remains free from ozone. On the side opposite the treatment space, the so-called three chamber system is employed. Here a protective wall separates the treatment space (in which the patients lie), the physician and the assistants, thus affording protection against the irradiation from the tubes. The roentgen-ray dosage can be constantly regulated by the Siemens roentgen-ray dosimeter. By means of a hand on a dial, the dosimeter, which is based on well established principles of physics, records the dosage in terms of seconds. This instrument has several advantages: it can be operated without difficulty by the assistants; it is easy of transportation, and it can be set up at a convenient distance from the place of irradiation.

In the north wing, which also is connected by a corridor with the middle structure, the rooms for diagnosis are located. This department contains an older type of diagnostic apparatus with high tension equilibrium control, which was taken from the former roentgenographic station of the Moabit Hospital, and also a large diagnostic apparatus built on entirely different principles with hot cathode tubes (*Glühventilröhren*) for making roentgenograms and doing fluoroscopic work. The diagnostic department is supplied with all modern equipment. The Schmidt adjustable table, invented by General Schmidt, chief physician and the present director of the diagnostic department, is not entirely new, but it has proved its worth. In addition, the department has also two "Universal" tables and a modern diagnostic stand, which owes its origin to many years of practical experience. A Lorenz trochoscope, Bucky's drop diaphragm and the Albers-Schönberg spring diaphragm complete the equipment. The institute, which is under municipal control, is managed by Dr. Frik, chief physician.

The Treatment of Paralysis with Induced Malarial Infection

In connection with the treatment of paralysis by an induced malarial infection, a special order has been issued by the ministry of public welfare calling attention to the danger of spreading malaria by this method of treatment. The minister therefore requests the authorities to urge medical practitioners to use extreme caution in performing such experiments, and especially to protect their patients against the bite of the anopheles mosquito. Public health officers should be on the watch with a view to discovering whether any malaria cases point to a connection with induced infections.

Attendance at German Universities

According to a statistical report recently issued by Professor Silbergleit, the director of the statistical bureau of the city of Berlin, the total number of students matriculated at German universities at the outbreak of the war was 60,748. After the war closed, many officers and war graduates from the preparatory schools flocked to the universities, so that during the winter semester of 1919-1920 the total roll of university students reached 89,346. More women than usual took up university studies. In the summer semester of 1914 there were 4,057 women students. Five years later, the number had doubled. For the summer semester of 1923, of 85,369 university students, 8,761 were women. The University of Berlin has the largest number of students, the attendance last semester being 12,500. Munich is second, with 8,630 students. The University of Cologne, which opened the summer of 1919, has an enrolment of 5,270. The University of Frankfort-on-the-Main, founded the winter of 1914-1915, has an attendance of 5,032. The University of Hamburg, established at the same time as the University of Cologne, has 4,571 students. In spite of the increase of 24,600, or 40 per cent., in the total number of students since the summer semester of 1914, the medical students have fallen off 3,964, or 24 per cent. Protestant theological students have decreased even more: 41 per cent. There has been a decrease also in the ranks of the philologists and the mathematicians. The students of law, however, have increased by 13,189, or 136 per cent. The chemists have increased greatly, also the agriculturists; but the greatest increase is noted among students of economics, whose number has grown from 2,488 to 15,216.

Marriages

LLEWELLYN EAST MCADON, Ranger, Texas, to Miss Irene Levy of Winnipeg, Man., Canada, recently.

WILLIAM BAILEY SIMS, JR., Washington, D. C., to Miss Marie Lorton, Richmond, Va., March 22.

THOMAS GARRETT PRETLOW and Mrs. Esther Berkeley Bentley, both of Chester, Va., March 26.

PAUL FUNKHOUSER, St. Louis, to Miss Gertrude Barnum Toles of Winnetka, Ill., April 12.

FRED EDWARD DARGATZ, Macksville, Kan., to Mrs. Cora E. Galbraith of Marion, April 18.

JOHN ALFRED MOFFITT to Miss Lockie Wilson, both of Chattanooga, Tenn., April 2.

ROBERT E. FRICKE, Baltimore, to Miss Gertrude Hax of Deer Park, Md., April 10.

BENJAMIN L. SALVIN to Miss Irene Gillman, both of Manchester, Conn., March 6.

Deaths

Theophil Mitchell Prudden, New York; Yale University of Medicine, New Haven, 1875; emeritus professor of pathology at the Columbia University College of Physicians and Surgeons, New York; lecturer on normal histology at his alma mater, 1880-1886; director of the Rockefeller Institute of Medical Research since 1901; member of the National Academy of Sciences; formerly president of the New York Pathology Society; member of the state board of health; author of "Manual of Normal Histology," "Text-Book of Pathology" and many other works; aged 75; died suddenly, April 10, of heart disease.

Elmer John Dickinson, Pietermaritzburg, South Africa; University of Manitoba Faculty of Medicine, Winnipeg, Man., Canada, 1916; formerly a practitioner in Canada; served with the Canadian Royal Army Medical Corps during the World War; awarded the Military Cross and the Croix de Guerre; aged 37; died, February 4, of heart disease.

S. Austin Davis, Hoboken, N. J.; Medical Department of the University of the City of New York, 1883; surgeon commander of the British Naval Auxiliary during the World War; formerly on the staffs of the Manhattan State Hospital, Ward's Island, and the Loomis (N. Y.) Sanitarium; aged 67; died, April 18, following a long illness.

J. Henri La Rocque, Plattsburg, N. Y.; Victoria University Medical Department, Toronto, Ont., Canada, 1872; member of the Medical Society of the State of New York; for twenty years city health officer; member of the city council; aged 75; died, March 16, of hypertrophy of the prostate and senility.

Harman Good, Dayton, Ohio; Starling Medical College, Columbus, 1889; member of the Ohio State Medical Association; aged 62; his body was found in the Loramie reservoir, March 30, with bullet wounds in the chest. Dr. Good had been missing since Oct. 15, 1923.

Thomas Francis Mallan, Washington, D. C.; Georgetown University School of Medicine, Washington, 1880; member of the Medical Society of the District of Columbia; on the staffs of the Providence and Children's hospitals; aged 66; died, April 4, of heart disease.

Frank H. Wilcox, New Albany, Ind.; University of Louisville (Ky.) Medical Department, 1890; member of the Indiana State Medical Association; aged 53; died, April 4, at the Jewish Hospital, Louisville, Ky., following an operation for ulcer of the stomach.

Fred Grover, Fraser, Mich.; University of Wooster Medical Department, Cleveland, 1886; member of the Michigan State Medical Society; formerly health officer of Fraser; aged 65; died, April 1, at the Pontiac (Mich.) State Hospital, of arteriosclerosis.

George David Johnston, Vancouver, B. C., Canada; M.R.C.S., England, and L.R.C.P., London, 1883; formerly on the staff of St. Thomas' Hospital, London, England; aged 72; died, January 23, at Patricia Bay, following a long illness.

Edward Henry Bounds, Hannibal, Mo.; Barnes Medical College, St. Louis, 1898; member of the Missouri State Medical Association; aged 51; on the staff of St. Elizabeth Hospital, where he died, April 5, following an operation.

Lon Lemuel Hewlett ✠ Lockhart, Texas; University of Louisville (Ky.) Medical Department, 1912; served in the M. C., U. S. Army, in France, during the World War; aged 37; died, February 9, of tuberculosis.

Gilbert Leighton Church, Warren, R. I.; Long Island College Hospital, Brooklyn, 1874; member of the Rhode Island Medical Society; member of the board of education; aged 74; died, March 20, of heart disease.

Edward S. Bogert, Jr. ✠ Captain, M. C., U. S. Navy, Brooklyn; Medical Department of Columbia College, New York, 1889; medical director of the supply depot, Brooklyn Navy Yard; aged 57; died, April 5.

Marvin Floyd Fisher, La Fontaine, Ind.; Indiana University School of Medicine, Indianapolis, 1908; served in the M. C., U. S. Army, during the World War; aged 42; died suddenly, April 3, of heart disease.

Richard Henry Conway Gibbons, Honesdale, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1874; member of the Medical Society of the State of New York; aged 74; died, April 8, of senility.

George Washington Faulkner, Belleville, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1871; for more than fifty years a practitioner in Stirling, Ont.; aged 78; died, March 8, of senility.

Daniel Edwin Stone, Mount Pleasant, Md.; University of Maryland School of Medicine, Baltimore, 1864; member of the Medical and Chirurgical Faculty of Maryland; aged 85; died, April 5, of senility.

John Joseph Dial ✠ Sulphur Springs, Texas; University of Louisville (Ky.) Medical Department, 1879; president of the Hopkins County Medical Society; aged 71; died, April 6, of cerebral hemorrhage.

James McAuliffe, Duluth, Minn.; University of Buffalo (N. Y.) Department of Medicine, 1888; formerly coroner of Duluth; aged 68; died, March 23, at St. Mary's Hospital, of cerebral hemorrhage.

James McNally, Chicago; L.R.C.P., Ireland, 1868; never in practice; vice president of the Rand-McNally Publishing Company since 1869; aged 76; died, March 25, at Pasadena, Calif., of pneumonia.

Harold H. Roberts ✠ Maywood, Ill.; Northwestern University Medical School, Chicago, 1902; on the staffs of the Oak Park and West Suburban hospitals, Oak Park; aged 51; died, April 12.

Albert Louis Scholl, San Francisco; University of California Medical School, San Francisco, 1884; aged 66; died, April 4, at St. Joseph's Hospital, of myocarditis and diabetes mellitus.

Samuel M. C. Reynolds, Boise, Idaho (licensed, Idaho, 1899); commandant to the Idaho Soldiers Home Hospital; Civil War veteran; aged 76; died, April 6, of cerebral hemorrhage.

Walter E. Saunders, Arlington, Ga.; Atlanta Medical College, 1895; president of the First National Bank; aged 49; died, February 25, of injuries received in an automobile accident.

Daniel Albert Rose, Edmonton, Alta., Canada; Trinity Medical College, Toronto, Ont., 1889; L.R.C.S., L.R.C.P., Edinburgh, and L.F.P.S., Glasgow, 1891; aged 57; died, February 1.

Abra C. Pettijohn ✠ St. Joseph, Mo.; Rush Medical College, Chicago, 1878; member of the American Psychiatric Association; aged 74; died, April 5, at Long Beach, Calif., of senility.

James Cleland Fitzsimmons, Brooklyn; Long Island College Hospital, Brooklyn, 1888; member of the Medical Society of the State of New York; aged 60; died suddenly, April 12.

S. B. Farmer, Boyle, Miss. (licensed, Mississippi, 1906); member of the city council; aged 44; died, April 2, of a self-inflicted bullet wound while suffering from ill health.

William Henry Aloysius Lyons ✠ Manchester, N. H.; Medical School of Harvard University, Boston, 1890; on the staff of the Sacred Heart Hospital; aged 57; died, April 2.

George Washington Gurnee, Cleveland; Cleveland Medical College, 1894; at one time on the staff of the City Hospital; aged 63; died, March 24, of chronic nephritis.

Beecher B. Baldwin, Los Angeles; Creighton Medical College, Omaha, 1906; formerly a practitioner in Nebraska and Iowa; aged 39; was shot and killed, April 11.

Charles Knapp, San Diego, Calif.; Bellevue Hospital Medical College, New York, 1870; formerly a practitioner in Indiana; aged 79; died, March 29, of senility.

Elmer Fessler, Thompson Falls, Mont.; Rush Medical College, Chicago, 1900; aged 51; died, April 7, of a self-inflicted bullet wound, while suffering from ill health.

Alice Gillespie Allen, Columbus, Ohio; Homeopathic Hospital College, Cleveland, 1893; aged 69; died, February 22, of diabetes mellitus and cerebral hemorrhage.

James C. Reinhart, Toledo, Ohio; Jefferson Medical College of Philadelphia, 1882; formerly city health officer; aged 69; died suddenly, April 3, of heart disease.

Edward Willis Finch, Petersburg, Va.; University of Maryland School of Medicine, Baltimore, 1868; Confederate veteran; aged 78; died, April 3, of senility.

Edward Alexander Hatton ✙ Portsmouth, Va.; Medical Department of Columbia College, New York, 1891; aged 54; died, April 2, of cerebral hemorrhage.

James Jones Philips, Raleigh, N. C.; Medical Department of Columbia College, New York, 1894; aged 54; died suddenly, April 2, of angina pectoris.

Alexander Bear, Richmond, Va.; University of Maryland School of Medicine, Baltimore, 1860; Confederate veteran; aged 83; died, April 2, of senility.

William A. Trout, Tucson, Ariz.; Missouri Medical College, St. Louis, 1881; member of the Illinois State Medical Society; aged 70; died, April 4, of senility.

John Philip Foland ✙ New York; Medical Department of the University of the City of New York, 1884; aged 62; died, April 11, of cerebral hemorrhage.

James Harrod, Vilonia, Ark.; University of Tennessee College of Medicine, Memphis, 1878; Confederate veteran; aged 83; died, April 1, of senility.

Clarence Alfred Brisco, Timmins, Ont., Canada; University of Toronto Faculty of Medicine, 1913; aged 32; died, January 24, in London, England.

Lyle E. Jones, Whitehall, Mich.; Starling Medical College, Columbus, 1885; aged 65; died, March 29, at Williamsburg, Ky., of cerebral hemorrhage.

Albert Enos Higbee, Minneapolis; Hahnemann Medical College and Hospital, Chicago, 1871; Civil War veteran; aged 82; died, April 3, of senility.

William Butler Webster ✙ Schuylerville, N. Y.; Albany Medical College, 1881; formerly city health officer; aged 65; died, April 7, of pneumonia.

Charles R. Herron, Savannah, Ga.; Jefferson Medical College of Philadelphia, 1879; Civil War veteran; aged 82; died, March 11, of heart disease.

Augustus Tupper Clarke, Wetmore, Colo.; Medical School of Harvard University, Boston, 1870; aged 74; died, January 29, of cerebral hemorrhage.

Joseph Bryant Gamble, Brantford, Ont., Canada; University of Toronto Faculty of Medicine, 1889; aged 65; died, March 12, of pneumonia.

E. Adelbert Burchard ✙ Lodi, Calif.; University of Wooster Medical Department, Cleveland, 1877; aged 75; died, March 31, of septicemia.

John H. Alexander, Belmont, Wis.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1886; aged 69; died, April 8, of heart disease.

Eugene Byron Glenn ✙ Asheville, N. C.; Jefferson Medical College of Philadelphia, 1896; formerly county health officer; aged 52; died, March 30.

Lysander P. Foster, Minneapolis; Hahnemann Medical College and Hospital, Chicago, 1882; also a lawyer; aged 88; died, April 7, of senility.

Walter Keith Feare, Vancouver, B. C., Canada; University of Toronto (Ont.) Faculty of Medicine, 1910; aged 35; died, recently, of pneumonia.

Eva Keith Greene, Los Angeles; Tufts College Medical School, Boston, 1900; formerly a practitioner of Chicago; aged 60; died, April 9.

Jesse F. McCracken, Guilford College, N. C.; College of Physicians and Surgeons, Baltimore, 1893; aged 65; died suddenly, March 31.

Samuel F. Smith ✙ Bakersfield, Calif.; University of Southern California College of Medicine, Los Angeles, 1895; aged 58; died, April 3.

Lewis E. Rauterberg, Washington, D. C.; Georgetown University School of Medicine, Washington, 1867; aged 81; died, March 19, of senility.

Virginia Mahoney, Phoenix, Ariz.; Northwestern University Woman's Medical School, Chicago, 1883; aged 75; died, April 6, of senility.

William Thomas Swindle, Maynard, Ark.; Wisconsin Eclectic Medical School, Milwaukee, 1896; aged 70; died, April 8, of senility.

Albion Arthur Cross, Pittsburgh; University of Vermont College of Medicine, Burlington, 1912; aged 36; died, March 30, of pneumonia.

William Ralph Boudreau ✙ Washington, La.; Louisville (Ky.) Medical College, 1896; formerly county coroner; aged 51; died, April 2.

William Rutherford Campbell, Pendleton, Ore.; Kentucky School of Medicine, Louisville, 1877; aged 75; died, March 20, of senility.

Ralph D. P. Brown, Denver; Dunham Medical College, Chicago, 1902; formerly a lawyer; aged 62; died, March 29, of carcinoma.

Andrew J. Edmonds, Bruin, Pa.; Jefferson Medical College of Philadelphia, 1887; aged 60; died, April 1, at Butler, of heart disease.

Harvey Lee Matthews, Dawson, Texas; Vanderbilt University Medical Department, Nashville, 1887; aged 59; died, February 8.

Frederick Preston Coates, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1901; aged 50; died, March 10.

Mark Henry Lively, Hammonville, Ky.; Louisville Medical College, 1878; aged 70; died suddenly, March 25, of heart disease.

William Henry Horine ✙ Henryetta, Okla.; Missouri Medical College, St. Louis, 1899; aged 49; died, April 6, of heart disease.

Frank S. Carpenter, Newark, N. J.; Hahnemann Medical College and Hospital, Chicago, 1894; aged 65; died, April 8.

James E. Martin, Peace River, Alta., Canada; Trinity Medical College, Toronto, Ont., 1901; aged 50; died, January 18.

Allen W. Cormack, Albany, Ore.; Eclectic Medical Institute, Cincinnati, 1875; aged 70; died, March 27, of senility.

James Melville Lupher, Towniville, Pa.; Eclectic Medical Institute, Cincinnati, 1884; aged 77; died, March 9, of senility.

Matthew S. Carr, East St. Louis, Ill.; Missouri Medical College, St. Louis, 1868; aged 84; died, April 7, of carcinoma.

Thomas B. Williams, Philadelphia; Jefferson Medical College of Philadelphia, 1887; aged 76; died, April 15, of senility.

John Bradford Flack, Cincinnati; Eclectic Medical Institute, Cincinnati, 1884; aged 71; died, April 6, of senility.

H. W. Ashley, Marmaduke, Ark. (licensed, Arkansas, 1903); aged 58; died, March 19, of cerebral hemorrhage.

Floreano Stolfi, New York; University of Naples, Italy, 1891; aged 58; died suddenly, April 7, of heart disease.

R. D. Patterson, Liberty, N. C.; Baltimore Medical College, 1897; was killed, April 3, in an automobile accident.

James P. McWilliams, LaFayette, Ga.; Atlanta Medical College, 1879; aged 70; died, March 25, of senility.

J. O. Holton, Prairie Hill, Texas; Gate City Medical College, Texarkana, 1907; was shot and killed, April 2.

W. J. McNatt, Alliance, Texas (years of practice); aged 70; died, April 9, following a long illness.

C. M. Burton, Inman, Kan. (years of practice); aged 60; died, March 26, of cerebral hemorrhage.

George William Swett, Malden, Mass. (years of practice); aged 93; died, March 14, of senility.

John N. Venard, Ness City, Kan. (licensed, Kansas, 1901); aged 75; died, April 2, of senility.

John H. Burke, Decatur, Ill.; Detroit (Mich.) Medical College, 1884; aged 67; died, April 6.

John B. Sanderfur, Hope, Ark. (licensed, Arkansas, 1903); aged 90; died, April 7, of senility.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

TOLYSIN OMITTED FROM N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

Tolysin is the proprietary name under which the Calco Chemical Company markets its brand of neocinchophen. Neocinchophen was first introduced under the name novatophan and the Calco Chemical Company manufactures its product under license from the Chemical Foundation which owns the patent issued to the original patentees.

As confusion results when several arbitrary names are used for a single substance, the Council does not recognize arbitrary names except when they are given by the discoverers. In the case of Tolysin, however, the Council made an exception to its rule and agreed to recognize the name. This was done, first, because the Calco Chemical Company promised to use novatophan or neocinchophen as a synonym for Tolysin, thus avoiding, in a measure, confusion concerning the identity of the substance on the part of physicians, and second, because the Calco Chemical Company was the only firm supplying neocinchophen in the United States.

Before Tolysin was accepted, the Council required the discontinuance of the claim that the drug is free from cardiac-depressant and renal-irritant actions except where limited amounts are used. Despite this requirement, advertising recently issued for Tolysin implies that it is free from toxicity. Examples of this are afforded by the following quotations:

"In a previous paper, 'Nontoxicity and Antipyretic Efficiency of Tolysin,' by Drs. H. G. Barbour and E. Lozinsky, reprint of which we recently sent you, the authors stated, 'We find, therefore, in Tolysin a drug exhibiting the coincidence that the maximum limit of absorption is practically identical with the full therapeutic dose—apparently a new and fortunate peculiarity in pharmacologic behavior.'"

"Referring to Tolysin the authors state 'Such a drug seems to offer possibilities as a partial, if not a complete, substitute for the salicylates which are now in use, all of which require constant attention to the avoidance of toxic symptoms.' They state further, 'In fact, in all cases in which we have followed the results of Tolysin treatment, nausea, vomiting, excessive sweating and cardiac depression have been absent. So-called "salycylism" is not induced even by relatively large doses.'"

On the other hand, Hanzlik, Scott, Weidenthal and Fetterman (THE JOURNAL A. M. A., June 18, 1921, pp. 1728-1734) observed toxic symptoms in man after the administration of therapeutic doses. The albuminuria caused by neocinchophen was, however, less severe than that caused by cinchophen, and much less severe than that caused by a salicylate. The evidence does not justify the claim that Tolysin is without toxicity. In regard to the increasing of the renal function, Hanzlik *et al.* state:

> "Even though neocinchophen does improve the renal excretory power for certain dyes and metabolites, it does not follow from this that its value as an antirheumatic remedy has been enhanced thereby. On the contrary, it might be argued, that this hyperfunction of the kidney is an evidence of early nephritis, as has been suggested by some from observations on 'hyperpermeability' or 'superpermeability' of the kidney to other agents; and if so, the administration of neocinchophen is injurious. Mere speculation, however, does not help; a complete pharmacologic study of the actions of neocinchophen and cinchophen is needed."

The same authors point out that although neocinchophen is accompanied by systemic disturbances more mild than those from cinchophen or a salicylate, it is also less effective in the treatment of rheumatism than a salicylate.

The papers of Barbour and his co-workers are concerned only with the acute and fatal poisoning in animals and the treatment of patients. They state that only in one of the twelve patients treated with Tolysin for acute or subacute rheumatic fevers, did albumin first appear or increase in amount during the treatment with Tolysin, and that in all cases in which they followed the results of the Tolysin treatment, nausea, vomiting, excessive sweating and cardiac depression were absent.

One must conclude that Barbour, Lozinsky and Clement used neocinchophen only in selected cases, or that their experiments were too few to permit of conclusions as to toxicity. Certainly the negative results of these authors cannot weigh against the positive statements of Hanzlik, Scott, Weidenthal and Fetterman, except to show that neocinchophen is sometimes used without toxic effects just as Hanzlik et al. had observed in some cases. It is a great pity that a valuable drug like neocinchophen is marketed without a fair statement of the evidence concerning its use, and in such a way as to give the impression that it is entirely harmless. Such methods may lead to temporary financial gain, but ultimately, they must lead to disappointment or to the discrediting of a useful drug.

The agreement concerning the synonym having been disregarded, the Council notified the Calco Chemical Company that it was not living up to its agreement, and that the labels and the advertising matter issued did not bear either the name novatophan or neocinchophen as had been promised. In reply to this notification, the firm replied (Nov. 11, 1921) that it had no intention of ignoring the provision under which Tolysin had been accepted, and that steps were being taken so that the synonym "novatophan" would appear on the labels and in the advertising issued in the future for Tolysin. Subsequently, however, the Calco Chemical Company determined to break its agreement and none of the 1922 and 1923 circulars or medical journal advertisements for Tolysin in the Council files contain either the synonym neocinchophen or novatophan, except those which appeared in THE JOURNAL of the American Medical Association.

The Council directed the omission of Tolysin from New and Nonofficial Remedies because (1) it is marketed with unwarranted therapeutic claims; and (2) by the omission of the established synonym, neocinchophen (or novatophan), the physician is likely not to appreciate the character of the drug and its relation to cinchophen.

Correspondence

"SURGERY OF THE SPINE AND EXTREMITIES"

To the Editor: — In THE JOURNAL, March 22, page 995, appears under Book Notices the review of my last book, "Surgery of the Spine and Extremities." The critic takes exception to my use of the adjective "tubercular."

I wish to note that I use the adjectives "tuberculous" and "tubercular" interchangeably, and will give my authorities for so doing. He says, referring to the discussion of tuberculosis of the spine, "Here, as elsewhere, the author uses the adjective 'tubercular' instead of the correct word, 'tuberculous,' which is surprising. 'Tubercular' means 'knobby,' and may be applied to a potato, but not to a tuberculous spine." These adjectives are used synonymously, and I would refer to Worcester's Unabridged Dictionary, page 1551; Webster's Unabridged Dictionary, page 1181; Century Dictionary, Volume VIII, page 6519, and in the last named one will find "tubercular" as the invariable prefix to tuberculosis of the various parts of the body.

Occasionally this adjective may be interchanged with "tuberculous or tuberculate" or "tuberculated," if one desires to relieve the monotony in the choice of words in writing on this subject. Chambers' Encyclopaedia, in the article on "Tubercle," page 571, uses "tubercular" and not "tuberculous." My desk dictionary is a compilation of forty-eight standard authorities on etymology, diction and English, and uses "tubercular" in preference to "tuberculous" as applied to surgical tuberculosis.

In regard to "tubercular" being "applied to a potato," I fear the critic has gotten *his* adjectives confused and meant to use "tuberous." In the good old trucking state of Maryland, I fear one would insult our market men if one asked for "tubercular potatoes."

I would also suggest that the ultraconservative treatment of tuberculosis of the hip advocated be reread, as it almost invariably is efficacious. I only recommended "erasion," not "excision," as a *dernier ressort*. In no instance did I recommend "cutting through a healthy joint to reach a focus in the neck of the femur," an anatomic impossibility, unless one approached from within the pelvis. On the other hand, I advised as little disturbance of the epiphysis as possible.

R. HUNSTALL TAYLOR, M.D., Baltimore.

"THE RESISTANCE OF MALARIA TO QUININ"

To the Editor:—I can heartily endorse Fletcher's assertion with reference to the value of quinin in malaria, reviewed in the editorial on the resistance of malaria to quinin (THE JOURNAL, April 5).

In 1922-1923 while I was director of internal medicine in the American University of Bierut, Syria, eighty-nine hospitalized patients were treated with quinin for malaria. The types recognized by the parasite in the blood were tertian, sixty-three; quotidian, nineteen, and quartian, seven. All were arrested; by arrest is meant a cessation of chills and fever and a disappearance of the plasmodium from the peripheral blood.

The quinin was administered, to the average patient, by mouth, 15 grains (1 gm.) in the early morning on an "empty stomach"; and 15 grains at 10 p. m. Usually three or four days was a sufficient length of time to secure an arrest. The earlier the infection was recognized and proper treatment administered, the better were the results. No instance of hypersensitiveness to quinin were encountered. Occasionally 1 c.c. of quinin hydrochlorid by intramuscular injection was used.

Intramuscular injection is the practice of many physicians in Asia. It is at all times painful, and often dangerous, especially in unskilled or semiskilled hands. I could see no distinct advantage in the procedure excepting in the individual who could not be induced or forced to take it by mouth. I did see several nasty sequelae from its use. I saw several patients whose "malaria" was said to be "quinin resistant." In no instance were we able to find the plasmodium or anything else that proved the diagnosis of "malaria" correct.

JOHN W. SHUMAN, M.D., Los Angeles.

PRECIPITATE AFTER BENEDICT'S TEST

To the Editor:—I have just read the first two queries and answers in THE JOURNAL, April 12, page 1218.

Regarding the second query, "White Precipitate in Urine after Benedict Test," I believe the difficulty is that the doctor has employed Benedict's quantitative reagent instead of the qualitative reagent, and this is the reason for his obtaining a chalk white precipitate. I have seen a number fall into this error.

Regarding the first query, on "Diacetic Acid and Acetone in Alkaline Urine," ketosis is by no means incompatible with an alkalosis, although ketosis is the cause of the acidosis in diabetes. It is perfectly possible by the administration of sodium bicarbonate to produce a condition of alkalosis, but this does not relieve the ketosis and consequently acetone continues to be eliminated despite the fact that the urine may be alkaline. In the April *Journal of Biological Chemistry*, Myers and Booher report data in such a case in which the p_H was 7.60 and the carbon dioxid content 75. Despite the uncompensated alkalosis, acetone continues to be eliminated.

VICTOR C. MYERS, PH.D., New York.

TAKING COD LIVER OIL

To the Editor:—The use of cod liver oil is limited because of its odor, its taste, and the fact that it "repeats" with so many patients. Some months ago, I prescribed it for a patient who protested, and just by chance I suggested that she eat half a banana immediately after taking the dose of oil. The result was remarkable and has enabled me to give this preparation in many instances in which I am sure it could never have been used otherwise.

WILLIAM H. BLOCK, M.D., New Orleans.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF DIABETES WITH INSULIN

To the Editor:—1. What effect does high blood sugar have on the islands of Langerhans? Is it sufficient to keep the urine sugar-free in a diabetic patient, or should the blood sugar be kept at normal at all times, or practically at all times? 2. Will the administering of insulin to diabetic patient rest the islands of Langerhans? If so, will they recuperate during this period? 3. How long after a meal should a person wait before having a blood sugar test taken? 4. In the first days of administering insulin, how often should the blood sugar test be taken?

———, M.D., Illinois.

ANSWER.—1. Continued presence of high blood sugar probably exerts a progressive harmful influence on the islands of Langerhans. For that reason, it is usually wise to maintain the blood sugar level at normal. There are, however, certain patients, particularly the older ones with diabetes of long standing, whose general condition seems better without radical efforts at reducing blood sugar beyond "nearly normal."

2. Administration of insulin to a diabetic patient is supposed to act in the same way as keeping that patient sugar free by dietetic procedures. In other words, any procedure that causes the sugar to disappear theoretically rests the pancreas, and during this period of rest the islands are supposed to recuperate. However, the actual clinical data showing definite recuperation of the island under insulin therapy is certainly not sufficient to warrant this assertion.

3. The best time to check blood sugar is in the early morning before breakfast, at which time the lowest level is reached. During insulin therapy, however, the lowest level of blood sugar will occur in from one to two hours after insulin is used. The best time, then, to take a blood sugar test would depend a good deal on what information is wanted.

4. Blood sugar should be taken sufficiently often during the administration of insulin to make sure that at no time does the blood sugar exceed normal or go below normal. It is well to test each patient individually once after various doses of insulin.

TREATMENT OF INFESTATION WITH HYMENOLEPIS NANA

To the Editor:—Please suggest the best drug and dosage to be used in *Hymenolepis nana* occurring in a child, aged 3 years. Could you state whether carbon tetrachlorid has been used, and if so how successfully?

GEORGE P. EDDY, M.D., Niagara Falls, N. Y.

ANSWER.—Aspidium is generally considered the best drug for this form of intestinal infestation, and the dose for a 3 year old child usually recommended is 1 gm. This dose probably errs on the side of conservatism, and a vigorous child of that age might probably be given as much as 2 gm. with safety. To make it less disagreeable, the dose might be divided into two or three portions and mixed with fruit preserve and administered at intervals of from five to ten minutes.

Preliminary evacuation of the intestinal tract, restricted diet for a day or two, and the administration of a saline cathartic, such as solution of magnesium citrate, two hours

after the last dose of aspidium, should, of course, form part of the treatment.

In view of the fact that *Hymenolepis nana* may be present in enormous numbers and bore deeply into the intestinal mucosa, repeated administration of aspidium is usually required to rid the patient of the parasites. However, it is best to wait a few weeks, when the continual passage of eggs would indicate the necessity for another dose.

LEAD POISONING FROM STORAGE BATTERIES

To the Editor:—Are there any cases of lead poisoning (lead colic) on record occurring among garage mechanics specializing in rebuilding and recharging storage batteries? I have a case of intestinal colic under observation at the present time in which everything can be eliminated except lead colic, a complete gastro-intestinal roentgen-ray study being entirely negative. The occupation of this patient is as indicated. There is no blue line on the gums, and there is no stippling of his red cells. There are two ways this substance might gain entrance into the body in this case; namely, from the hands in handling the grid plates and by inhaling the lead fumes from the action of the blow torch.

H. S. GEIGER, M.D., Kissimmee, Fla.

ANSWER.—The following is a list of references to the subject:

Sharpe, N. C.: Some Clinical Aspects of Industrial Poisoning, *Pub. Health J.* **14**: 110 (March) 1923 (three cases of lead colic in working with storage batteries).
Blumgart, H. L.: Lead Studies: Absorption of Lead by the Upper Respiratory Passages, *J. Indust. Hyg.* **5**: 153 (Sept.) 1923.
Heim, F., and others: Lead Poisoning in Making Batteries, *Presse méd.* **30**: 92 (Feb. 1) 1922; abstr. THE JOURNAL, March 25, 1922, p. 927.
Kober and Hayhurst: Industrial Health, P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia, 1924.

SENSITIZATION TO ANTITOXIN

To the Editor:—The article on the prophylactic use of diphtheria antitoxin (THE JOURNAL, March 29) does not mention the danger of sensitizing exposed persons so that, if they should develop diphtheria nine or more days later, it would not be as safe to give a curative dose if a prophylactic dose had been given.

A. J. PEARCE, M.D., South Heights, Pa.

ANSWER.—The fear of severe and even fatal serum reactions after second injections has been needlessly exaggerated. It has resulted largely from the erroneous inference that human beings act like guinea-pigs as regards sensitization by horse serum. This is not the case. Second doses of serum after an interval may cause prompt and severe reactions, but they are comparable to those which at times follow original injections of serum, and are not more apt to be fatal.

If a person has had serum before, it is wise first to test the sensibility to a small amount, say 0.25 c.c., and if reaction follows, gradually increasing amounts may be given at intervals of a half hour until the required amount has been given. To avoid sensitizing against horse serum, it has been suggested that serum from some other species of animal, especially the cow, be employed for immunization. This has been done only to a limited extent, and producers of antidiphtheria serum have not grasped the significance of this suggestion, nor acted on it.

WASSERMANN TEST AND TREATMENT OF SYPHILIS

To the Editor:—Regarding a patient with syphilis receiving neo-arsphenamin intravenously and mercuric salicylate intramuscularly: 1. Is it advisable to have frequent Wassermann tests during the course of treatment? 2. And, if positive, to increase the dose of neo-arsphenamin at the next injection? 3. Does the weight of the patient govern the size of the dose? 4. Should one wait a month after the completion of a course; namely, six neo-arsphenamin and ten mercuric salicylate, before having a Wassermann test made? 5. Is it advisable after giving a dose of neo-arsphenamin by syringe to draw blood back into the syringe (for a Wassermann test) before withdrawing the needle, thus saving an extra venous puncture?

H. B. C., M.D., Torrington, Conn.

ANSWER.—1. It is not at all essential.

2. If, however, this is done and the reaction is still positive, it does not call for an increased dosage of arsphenamin at the next injection, provided the injections previously employed have been of the standard quantity.

3. The weight of the patient is a satisfactory index for the size of the dose.

4. The Wassermann test employed in this way is most satisfactory as an index of the results of treatment.

5. It is probably preferable to withdraw the blood before injecting the arsphenamin.

CANNED HEAT

To the Editor:—Referring to the subject of "canned heat" as a beverage, the method of preparing it for use is not by melting, as suggested in THE JOURNAL, April 5. The contents of the can are scraped into a cloth—an old shirt or anything else that is handy—and pressed through the cloth, the liquid expressed therefrom being diluted to the proper strength with water. I had occasion to investigate a death resulting from such a "spree" and found about a bushel of empty tins, an old shirt, showing the stains of many pressings, and also a number of the jelly-like masses of soap, etc., remaining. Death in this case seemed to be from cardiac failure.

WILLIAM C. REED, Bloomington, Ind.
Coroner, Monroe County.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, May 13-14. Sec., Dr. J. W. Walker, Fayetteville.
GEORGIA: Atlanta and Augusta, June 4-6, 1924. Sec., Dr. C. T. Nolan, Marietta.
KENTUCKY: Louisville, June 9, 1924. Sec., Dr. A. T. McCormack, 532 W. Main Street, Louisville.
LOUISIANA: New Orleans, June 12-14, 1924. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.
MASSACHUSETTS: Boston, May 13-15. Sec., Dr. Charles E. Prior, 144 State House, Boston.
MICHIGAN: Ann Arbor, June 10-12, 1924. Sec., Dr. B. D. Harison, 707 Stroh Bldg., Detroit.
NEVADA: Carson City, May 5. Sec., Dr. S. L. Lee, Carson City.
OHIO: Columbus, June 3-6, 1924. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.
TENNESSEE: Memphis, June 13-14, 1924. Sec., Dr. A. B. De Loach, 434 Madison Ave. Bldg., Memphis.
WYOMING: Casper, June 5-11, 1924. Sec., Dr. J. D. Shingle, Citizens Bank Bldg., Cheyenne.

Ohio January Examination

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports that 25 candidates were licensed by reciprocity, at a meeting held at Columbus, Jan. 2, 1924. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University School of Medicine		(1903)	Virginia
National University Medical Department, Washington		(1901)	Penna.
Rush Medical College		(1923)	Illinois
College of Physicians and Surgeons, Chicago		(1907)	Iowa
Kentucky School of Medicine, Louisville		(1896)	W. Virginia
University of Louisville Medical Department		(1908) (1921)	W. Virginia Kentucky
College of Physicians and Surgeons, Baltimore		(1893)	W. Virginia
Johns Hopkins University Medical School		(1918) (1920)	New York Maryland
Detroit College of Medicine and Surgery		(1923)	Michigan
University of Michigan Medical School		(1915) (1922)	Michigan Michigan
New York University Medical College		(1884)	Penna.
Washington University Medical School		(1920)	Missouri
University Medical College of Kansas City		(1901)	Kentucky
University of Nebraska College of Medicine		(1922)	Nebraska
University and Bellevue Hospital Medical College		(1909)	New York
Leonard Medical School		(1902)	Alabama
Jefferson Medical College of Philadelphia		(1918), (1920)	W. Virginia
University of Pittsburgh School of Medicine		(1905), (1906)	Penna.
Meharry Medical College		(1914), (1916)	Texas

Oregon January Examination

Dr. Urling C. Coe, secretary, Oregon State Board of Medical Examiners, reports the written examination held at Portland, Jan. 2-4, 1924. The examination covered 12 subjects and included 92 questions. An average of 75 per cent. was required to pass. Of the 14 candidates examined, 12, including 2 osteopaths, passed, and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Medical Evangelists		(1923)	82
Rush Medical College		(1923, 2)*	79.4, 84
Johns Hopkins University Medical School		(1919)	89.1
Western Reserve University		(1881)	76
University of Oregon Medical School		(1921) (1923)	78, (1922) 79.4, 92.2
Hahnemann Med. College and Hospital, Philadelphia		(1922)	77.3
McGill University Faculty of Medicine		(1909)	84.4
Osteopaths			75, 80

College	FAILED	Year Grad.	Per Cent.
Rush Medical College		(1918)	86†
St. Louis College of Physicians and Surgeons		(1914)	56

* This candidate has completed his medical course, and will receive his M.D. degree on completion of a year's internship in a hospital.
† Failed in two major subjects.

Book Notices

Papers and Addresses in Surgery. By R. Hamilton Russell, F.R.C.S., Consulting Surgeon to the Alfred Hospital. Cloth. Pp. 452, with 69 illustrations. Melbourne: Allan Grant, 1923.

This collection of papers includes an address, which is particularly interesting because of the author's personal association as a student under Lister thirty-five years before. Numerous papers on hernia, which are largely a repetition of observations to support the saccular theory, take up a large part of the book. There are a number of papers on fractures, which include a variety of important principles. Among other worthy original contributions are: the excision of strictures of the urethra, the treatment of tuberculous joints, and a method of anterior approach to the knee joint. A few unusual cases are reported, including a case of congenital cyst of the common bile duct, removal of a pin from the lung by thoracotomy, and cases of bone implantation and transplantation. The addition of recent reports of certain cases is added interest to the original report. Some of the papers have been slightly amended, and a few of the author's contributions have been omitted, as time has shown their lack of value. This work has been done by the author and has made the book more valuable. Few of the papers are of recent date, but the writer's broad experience and his establishment of general surgical principles makes the contributions of more than general interest.

The Insulin Treatment of Diabetes Mellitus. By P. J. Cammidge, M.D., D.P.H. Cloth. Pp. 172. Edinburgh: E. & S. Livingstone, 1924.

The title of this small volume is misleading, for instead of giving a discussion of insulin in diabetes, it also goes into some detail concerning the author's views on diabetes. It is true that these views are exhibited now in connection with insulin treatment, and that the general subject of insulin therapy is thoroughly discussed. Perhaps the most definite reaction received from reading these pages is the thought that no two students of the disease think or act in the same way regarding it, yet treatment at the hands of careful workers seems to be about equally efficient. Cammidge gives much more study to his cases than do most clinicians, and this study must ultimately prove of value; yet at present one cannot help but wonder whether more simple procedures will not prove of greater assistance to the development of better insulin therapy. The story is interesting and is well told. Cammidge thus summarizes his experience with insulin: "At least 50 per cent. of diabetics respond satisfactorily to dietetic treatment alone; in another 25 per cent. or so, judicious use of insulin may be helpful as an additional and temporary measure, and in the remaining 25 per cent. it is only possible to render the life of the patient tolerable, and insure a reasonable standard of health and strength." Many other workers with insulin would dispute these figures.

Manual on Ship Sanitation and First Aid For Merchant Seamen. By Robert W. Hart. Prepared under the direction of the Rev. Archibald R. Mansfield, D.D., Superintendent, Seamen's Church Institute of New York, in cooperation with the United States Public Health Service. Second edition. Paper. Price, $1. Pp. 188, with 34 illustrations. New York: Seamen's Church Institute of New York, 1923.

There are places where, for long intervals of time, professional medical advice cannot be had. Among these are the sea-going ships in the merchant service on long voyages. From time immemorial the captain of such a vessel has been required to act, not only as a sailing master, but as chaplain and as medical adviser to the sailors aboard his ship. Recently the United States Public Health Service has arranged to broadcast to vessels at sea medical advice in such emergencies as are beyond the capacity of the sailing-masters. Ten stations on the coast of the United States and seven in Central America have been designated as emergency radio medical stations where such advice may be had. For the most part, however, the ship's captain must be the physician for the persons on his vessel, and this little manual is designed for his use. It deals with ship sanitation and hygiene, gives an outline of the common medical and surgical conditions that obtain on shipboard, together with directions for the treatment of disease and for the proper care of injuries. The language and terms used are as simple as possible, so that those for whom the manual is intended may find it easy to understand. Part I, on general sanitation and hygiene as related to conditions on shipboard, discusses briefly the causes of disease, conditions affecting health, such as cleanliness, bathing, care of the teeth, clothing, bedding, vermin, light and ventilation, water purification and certain diseases of especial sanitary significance on shipboard, among them plague, yellow fever, typhus, malaria, smallpox, cholera, typhoid fever and the venereal diseases. Warning is given against resort to "patent medicines" and quacks. The quarantine laws are printed in abstract and are discussed. A chapter on anatomy and physiology is so brief as to be of doubtful value, although the few illustrations may be helpful. The location, arrangement and equipment of the ship's bay (hospital room) are described, and then the medicine chest containing forty-six drugs, and also an assortment of surgical and general supplies. In discussing the use of drugs the caution is frequently reiterated, "Read directions carefully before using." There is a chapter on medical first aid and one on surgical first aid, the latter with many helpful illustrations. An appendix contains excerpts from the regulations of the United States Public Health Service and from the navigation laws. A glossary of medical terms is followed by an adequate index. The advice given in this manual is, on the whole, sound and in accord with the present state of medical knowledge. It affords a safe guide to the nonmedical person, shipmasters or otherwise, as to what may be done in emergency illness or injury in the absence of a physician. As such it will be useful to those who are so circumstanced as to be unable, for an interval, to obtain the service of a physician.

An Experimental Study of Psychopathic Delinquent Women. By Edith R. Spaulding, M.D. Introduction by Katharine Bement Davis, General Secretary, Bureau of Social Hygiene. Cloth. Price, $2.50. Pp. 368, with 14 illustrations. New York: Rand McNally & Co., 1923.

The experiments described were efforts to determine by practical demonstration the conditions necessary for the care and treatment of the type of women delinquents usually classed as psychopathic personalities. The first period from September, 1916, to May, 1917, was devoted to the effort to avoid punishment altogether and to use instead methods designed to build better habits by persuasion and seeing that the whole day was filled with varied activities. This proved a complete failure and was followed by the introduction of disciplinary measures adjusted to the indications afforded by detailed study of the individual and her difficulties. It took some time to overcome the demoralization that had followed the previous method, but this was successfully accomplished and the demonstration was continued until July 1, 1918. The book gives in detail the methods followed, the building plans, the personnel organization, the cost of operation and the histories of the cases treated. It is unfortunate that there is no concise statement of the purpose and the results achieved, which are buried in the mass of detail concerning the cases and the equipment. Valuable comments are offered which should be of material help in the planning for reformatory work of this kind, a field of activity which has been slow in development and which yet constitutes one of the most difficult problems of society. The work has been very thoroughly and carefully done and is a real contribution to reformatory science.

Handbuch der gesamten Tuberkulose-Therapie. Band II. Herausgegeben von Prof. Dr. med. Ernst Loewenstein. Paper. Price, 33 Swiss francs, 75 centimes. Pp. 1045-2027, with 195 illustrations. Berlin: Urban & Schwarzenberg, 1923.

This volume completes the entire work, the first volume of which has already been reviewed in these columns. One of the most valuable contributions in the entire compilation is that by Loewenstein on the specific treatment of tuberculosis, which is valuable particularly because of its thoroughly critical consideration of the enormous amount of work that has been done with tuberculin, and the many suggested modi-

fications. Such propositions as the "Partigen" treatment of Much, the treatment with living bacilli, of which the notorious Friedmann episode is but one, and the innumerable preparations of tubercle bacilli and their products which appear one by one in the literature, receive the necessary critical consideration. Loewenstein seems to be convinced that few if any of these proposals offer any advance on the well established methods originally introduced by Koch. The same author handles with brevity the subject of specific chemotherapy, a brevity justified by the lack of any decisive results despite the innumerable claims on the basis of insufficient evidence and inadequate methods. Other topics discussed are the therapy of kidney and bladder tuberculosis by Zuckerkándl; prostatic and testis tuberculosis, by Lichtenstern; skin tuberculosis, by Volk; tuberculosis of the eye, by A. Löwenstein; female generative tract, by Novak; tuberculosis of the upper respiratory passages, by Glas; roentgen-ray therapy, by Ziegler; surgical treatment of lung tuberculosis, by Jassen; artificial pneumothorax, by Saugmann, Sorgo and Carpi, and bone and joint tuberculosis by Haas, as well as minor topics, including the subject of tuberculosis in the tropics, by Heinemann. The cardiovascular system, the alimentary tract and the ductless glands in tuberculosis all receive consideration. Sternberg presents his well known views on the relation of tuberculosis to lymphogranulomatosis. The work is an extensive and exhaustive one, of value as a reference book to workers in other fields than that of tuberculosis. As a whole, however, it lacks much in respect to balancing of the different sections, and the references to the literature are not cited in a way that makes it always easy to find the original publication.

RADIODONTIA (DENTAL RADIOGRAPHY AND DIAGNOSIS). Questions and Answers. By Howard Riley Raper, D.D.S. Cloth. Price, $4.50. Pp. 192, with 52 illustrations. Brooklyn: Dental Items of Interest Publishing Company, 1923.

The author has adopted a novel way of presenting the subject of roentgenology in dentistry. This is done by a series of questions and answers, and it is evident that he has thoroughly covered the subject. The book is adapted to both graduates and undergraduates. It is also of value to physicians as well as to dentists, particularly those concerned with focal infections of the dental structures. The various questions and answers are brief, and therefore are devoid of the verbosity found in many technical books; yet the subject is really gone into with considerable detail. The illustrations are clear cut and decidedly illuminating. The book will be a valuable addition to roentgen-ray literature, as have this author's previous contributions on the subject of dental roentgenology.

THE EFFECTS OF RADIUM UPON LIVING TISSUES. With Special Reference to Its Use in the Treatment of Malignant Disease. By Sidney Forsdike, M.D., B.S., F.R.C.S., Surgeon to Outpatients, Hospital for Women. Cloth. Price, $2 net. Pp. 72, with illustrations. New York: Paul B. Hoeber, Inc., 1923.

This is a concise presentation of the essentials of the therapeutic application of radium. A sketch of the history of the discovery of radium is followed by a discussion of its clinical properties, the term radioactivity, and the character of the rays emitted. Attention is called to the difference between alpha and beta rays as corpuscular rays in contradistinction to the gamma rays, which are rays of an undulating character. The chapter on the effect of radium on living tissues and structures is based on the literature and on experiments conducted by the author. Toward the possibility of stimulating a tumor by radium the author takes a rather skeptical attitude. He favors the employment of crossfire in the radiotherapy of malignant growths. Rodent ulcers and sarcomas seem to furnish the best and lasting results; next are cancers of the portio and cervix. The author is inclined to believe that the administration of colloid copper is a valuable adjunct to the radiotherapy of tumors. In cancer of the cervix, he recommends curettement previous to the insertion of the radium, in contrast to the Germans. He regards pelvic inflammation as a contraindication to the radiotherapy of genital tumors. He does not approve irradiation several weeks prior to operation on account of the unfavorable changes produced in the tissues. Too early postoperative irradiation is also counseled against, an intermission of two or three months being recommended. He believes that, in rodent ulcers and sarcomas, radiotherapy is undoubtedly the method of choice, the same being true in operable cancers of the uterus. In the latter, radiotherapy and operation furnish about equally good remote results, while, of course, radiotherapy does not involve the risks of surgical intervention. The closing chapter deals with the application of radium in persistent metrorrhagias not based on malignancy; here the author prefers radium to roentgen rays.

THE PHARMACISTS' BOTANY. By George B. Rigg, Ph.D., Associate Professor of Botany, University of Washington. Cloth. Price, $3.25. Pp. 303, with 45 illustrations. New York: The Macmillan Company, 1924.

The author's aim has been not only to include those phases of botany that are of specific use to the pharmacist, but also to give a general view of the subject which will serve as a background for him in his professional work. The book is interestingly written, and one of its excellent features is the attempt to simplify and explain the rather complex nomenclature of botany. Though botany is less closely associated with medicine than with pharmacy, a course such as here outlined might be pursued with much profit by medical students in their "premedical" years.

THE AMERICAN NATIONAL RED CROSS. Its Origin, Purposes, and Service. By Sarah Elizabeth Pickett. Cloth. Price, 50 cents. Pp. 210, with illustrations. New York: The Century Company, 1923.

This is a history of the Red Cross, explaining its origin, purposes and the manner in which it administers various functions. The work is extensive. A survey of the many activities in which the Red Cross takes a part may cause apprehension as to the extent to which it takes over peacetime functions that are more properly the work of the individual and the community. The book is published "not for profit," and will be valuable to any one who is anxious to encourage the work of this philanthropic organization.

LA TUBERCOLOSE DU TRACTUS UVÉAL, INFECTION ET SUPERINFECTION. Par le Docteur Henri Lagrange, Ancien interne des hôpitaux de Paris. Paper. Price, 25 francs net. Pp. 183, with 35 illustrations. Paris: Gaston Doin, 1924.

This anatomic, pathologic and experimental study of infection and superinfection of the uveal tract by tuberculosis represents an enormous amount of work on the part of the author. There are the reports of twelve cases of uveal tuberculosis, studied clinically and anatomically in the Morax clinic in Paris and the LaGrange clinic in Bordeaux. In connection with these are cited the immunologic and serologic studies on rabbits that have become fairly well known. The analysis of the clinical and experimental observations is summed up in the concluding five pages of the book, and does not lend itself to citation in a short review. Throughout, the statements are logical, but so much matter not immediately pertinent to the subject is introduced that the reader is apt to be badly confused. The book work is excellent, although paper covers are not particularly in vogue in the United States, and the illustrations illustrate. It is rather amusing to see the father of ophthalmology referred to as de Graefe, just as an enthusiastic Teuton some years ago referred to our own de Schweinitz as von Schweinitz. The publication of a book of this sort is a pleasant way to air one's own views, but it is questionable whether it will ever have an extensive circulation.

PARENTS AND SEX EDUCATION. For Parents of Children Under School Age. By B. C. Gruenberg, Ph.D. Cloth. Price, $1 net. Pp. 100. New York: The American Social Hygiene Association, 1923.

This is a safe manual on the subject it covers, and may well be recommended to all who believe that sex education is the function of the parents rather than of the teacher, the physician or the friend. Unfortunately, the book is written in somewhat too advanced a style to cause it to appeal to the average reader. It is more suitable to the well educated, and these possibly are already putting into practice the recommendations made by the author.

Medicolegal

Total Disability Notwithstanding Some Earning Power

(American Zinc Co. of Tennessee v. Lusk (Tenn.), 255 S. W. R. 39)

The Supreme Court of Tennessee, in affirming a judgment awarding compensation for total disability, says that it was conceded that claimant Lusk was injured while in the employ of the zinc company, but it was insisted that the proof showed that while one eye was altogether lost, 5 per cent. of the sight of the other remained, which might be increased to 15 per cent. by the use of proper corrective glasses, and that this condition did not warrant an award on the basis of total and permanent loss of the sight of both eyes. The workmen's compensation act of Tennessee provides that "the total and permanent loss of the sight of both eyes . . . or any other injury which totally incapacitates the employee from working at an occupation which brings him an income shall constitute total disability."

Giving application to that equitable construction required by the express terms of the compensation act, this court is of the opinion that whenever it appears that an employee has suffered such a degree of permanent loss of the sight of both eyes as totally incapacitates him from working at an income-yielding occupation which requires the use of eyesight, this constitutes such a loss of the sight as is contemplated by the statute. And, further, a condition resulting from injury which leaves the employee incapacitated to work in an income-yielding occupation constitutes total disability whenever his income-earning capacity is restricted to work which normally one can perform if totally blind; the loss being of the sight—or without arms, if the loss be of that nature. In other words, the employee's disability is none the less "total" in the sense of the statute although it appears that without arms he can yet use for income-earning purposes his eyes and feet or mental equipment; or, if without eyes, he can so use his retained physical and mental powers. Then, it appeared from the proof that this claimant indicated that, if provided with cash funds by commutation of his compensation, he would be able to invest these funds in a farm, and, with assistance from members of his family, contribute toward his support. This much one totally blind, or without arms, could of course do, but it is not within the intent of the statute to reduce the basis of compensation in any case by reason of the income which it may remain possible for the injured employee to earn by virtue primarily and principally of an investment.

The court thinks that there was in this case a "practical" destruction of the sight, when considered in connection with the manifest purpose of this legislation, which was to provide a substitute for the normal earning capacity of an employee in proportion to his injury. It was unnecessary for the court to pass on the question as to whether or not an employee will be required to use corrective glasses or other available appliances in order to reduce the compensation, as in this case it did not appear that even by the use of corrective glasses such a degree of sight would remain to the employee as would justify the court in overruling the finding of the trial judge as to the total disability of the claimant.

Forging to Prescription Name of Physician

(People v. Knight (Colo.), 219 Pac. R. 1074)

The Supreme Court of Colorado, in affirming an order sustaining a motion to quash the information in this case, says that the defendant was charged by the information, in two counts, with making and uttering a forged instrument, to wit, a prescription for a narcotic drug. The information alleged that the defendant forged to the prescription the name of a licensed physician, with intent to damage the physician. The information was brought under Section 6764, Compiled Laws of Colorado of 1921, which makes it an offense to forge or counterfeit certain instruments named in the statute, or to counterfeit or forge the handwriting of another with intent to prejudice, damage or defraud any person. It appeared from the people's brief that the motion to quash the information was sustained on the theory that the prejudice or damage must have been to some property right, or must have constituted or resulted in some pecuniary or financial loss to the party. It appeared further from the information that the physician whose name was falsely signed to the prescription was a resident of Colorado Springs, and that the prescription was used to obtain a narcotic in Denver. The supreme court is of the opinion that the statute, in making the intent to defraud or cause damage an element of the crime, refers to damages that can be measured in dollars and cents. The state contended that, if one may forge such a paper, a succession of such forgeries of the name of a physician might prejudice him. That may be so, but there could be no intent to produce such an effect, and it is too remote and incidental to be regarded as within the terms of the law. This court thinks that the trial court was right in so holding, and the ruling is therefore approved.

State Furnishing Impure Vaccine—Hearsay Report

(Sandel v. State (S. C.), 119 S. E. R. 776)

The Supreme Court of South Carolina says that the second trial of this case resulted in a verdict for the plaintiff, as administrator, for $25,250 damages for the death of one of his children, alleged to have been caused by contaminated antityphoid vaccine furnished by the state. The bringing of this action against the state was authorized by a statute whereby it is held that the state waived immunity from liability as a sovereign and was subjected to liability for a wrongful death caused by negligence in the same manner and to the same extent as any person or corporation would be liable. It is further held that the contention that in the distribution of vaccine the state occupied the position of an eleemosynary institution and was not on that account liable, either at common law or under the terms of the act, was untenable. To find as a fact that in the distribution of typhoid vaccine the state, through the state board of health, was engaged purely in a work of charity and benevolence would have required the court to assume that there was no economic and utilitarian purpose in the undertaking to safeguard and promote the health of the members of the body politic by distributing the vaccine in question. As a matter of fact, there are substantial differences in character and purpose between the work of the ordinary private corporation engaged in administering a fund for purposes of charity and benevolence, that is, of a so-called eleemosynary corporation, and that of a state, engaged in the prosecution under the police power of projects through governmental agencies for the promotion of the public health. Moreover, if the state's immunity as a sovereign was waived by the enabling act, the contention that, while waiving its immunity as a sovereign state, it retained and reserved the lesser privilege of immunity as an eleemosynary corporation is lacking in rational appeal.

But the court is of the opinion that the circuit judge committed reversible error in withdrawing from the consideration of the jury the defense of the contributory negligence of the plaintiff and his agents. The defendant had the right to interpose and rely on this defense, and that sufficient evidence was adduced on the trial to require the submission of this issue to the jury was clear.

The supreme court is also of the opinion that there was prejudicial error in admitting in evidence, over the defendant's objection, a report of the director of the laboratory of the state board of health on the lot of antityphoid vaccine of which that in question had been a part. The report was directed to a state health officer and secretary of the state board of health, and was submitted as a "report of investigation into the circumstances surrounding the recent deaths of children following the administration of typhoid vaccine." The report contained a "summary of cases," made up from reports of attending physicians, a summary of the reports of physicians using the vaccine in question, statements as to methods of preparation and test of the vaccine, and observations and conclusions as to the cause of contamination of the vaccine and as to the cause of the four deaths reported, among which were the Sandel children. The court knows of no law imposing on the state board of health, acting through the state health officer or his subordinates, the duty of reporting

and recording an official statement of the steps taken, testimony received, and conclusions reached on the basis of information derived from others, in the course of a special inquiry of the kind undertaken by the director of the laboratory. Since no such specific official duty was imposed on the state health officer, no authority conferred by him on the director could transmute a hearsay report into competent evidence as an official document. Since no authority could be implied from the nature of the state health officer's position to make an "official record" of matters outside his personal knowledge and that of his subordinates, the report of the director of the laboratory lacked the express sanction of law essential to impressing a report containing such hearsay matters with the probative dignity and value of an admissible official record. But even if made officially under express authority of law, a report or inquisition of the character of the director's paper is not generally admissible in evidence to prove the truth of all matters therein contained. Wherefore the cause was remanded for a new trial.

Erroneous Interpretation of Blood Test by Employee

(Morris v. Crusius (N. Y.), 201 N. Y. Supp. 766)

The Supreme Court of New York, Appellate Division, First Department, says that there was evidence from which the jury might properly find that the defendant was the owner of certain "X-Ray Laboratories" at the time of the plaintiff's having a blood test and an interpretation of it made. The work in which the institution was engaged was that of making roentgenoscopic and bacteriologic examinations for the medical and dental professions. The plaintiff was a dentist who had been suffering for at least two months from an abnormal condition of his hands or nails, which he was unable to heal by the use of ointments that he applied on the advice of physicians, and went to the laboratories to have a blood test made. He was referred to a chemist, who was employed there as a bacteriologist and chemist. The chemist made a test of the plaintiff's blood, showing the number of blood cells contained therein, and a urinalysis, both qualitative and quantitative. The blood test showed a positive result. After receiving the report, the plaintiff called the chemist on the telephone, and requested information about the report. He said that the chemist told him that he was in "pretty bad shape and had a bad disease," suggested treatment, and also recommended that he see his local physicians. Thereafter the plaintiff had a blood test made by a specialist and another by a physician who made such tests for a medical college, both of which tests were negative. Subsequently, the plaintiff brought this action to recover damages for alleged shame, mental perturbation, sickness, physical and mental disability, and mental anguish, together with financial loss, because of absence from his practice, and also by reason of loss in business ventures, all of which were alleged to have been caused by negligence on the part of the defendant in making and interpreting the blood test, and in giving the plaintiff an erroneous report with reference to the condition of his blood. He recovered a judgment for $1,334.63, which is reversed, with costs to the defendant, and the complaint dismissed.

This court found no evidence in the record to show that the chemist's oral diagnosis and advice were within the scope of his employment, and it is of the opinion that what was said by the chemist over the telephone, after the plaintiff had received the finished product of the laboratory, was entirely extraneous and without the scope of his employment. While the plaintiff might have gathered from the report that he was positively infected, his reliance was on no such interpretation by him. His counsel appreciated the character of the report; that it purported to be an analysis from but one point of view, and not a diagnosis; that its purpose was to inform a professional man of one phase of a patient's condition, and not to furnish a patient with a final statement, based on all phases of his condition. The making of the test and of the report was what the defendant undertook. The diagnosis and the advice given over the telephone were manifestly outside the chemist's work for the defendant. This court is concerned with the defendant's liability to the plaintiff, and not with that of the chemist.

Agreement Not to Practice Medicine Within Twenty Miles

(Randolph v. Graham (Texas), 254 S. W. R. 402)

The Court of Civil Appeals of Texas, in affirming a judgment in favor of plaintiff Graham, a physician, says that he brought this suit against defendant Randolph, another physician, to restrain the latter from practicing medicine in a certain town, or within a radius of 20 miles of the town. The plaintiff had purchased the property of the defendant in the town. Prior to the payment of the purchase money and the delivery of the deeds, a written agreement was entered into which stated that the defendant, having sold his property in the town, and his good will for a valuable consideration to the plaintiff, agreed not to practice medicine in that town or within a radius of 20 miles of it. After the sale the defendant moved away, but subsequently returned and began the practice of medicine at a place within the prohibited distance.

The court deduces from the authorities that contracts of the class under discussion, designated as contracts in restraint of trade, are void when unlimited as to time and space, but are valid if not unreasonable as to time or space. Here the space was limited, but the time was not. Such a contract as this one is not to be regarded as unreasonable, when fairly and openly made, nor in restraint of trade. The good will of a professional man may be as much an asset and a thing to be sold as that of a merchant. It is not apparent why it is unlawful for a physician, if he can get any one to purchase his property and his good will, to do so, just as a merchant may do the same thing, and bind the seller not to engage further in the same business within a certain distance or radius. This court sees no reason whatever to hold broadly such a contract void. It is a property right, personal in its nature, and should be left to the liberty and freedom of contract. There is no such public policy involved in it as would require the physician to keep his good will for his own interest or restrain him from abandoning his practice and selling out his estate and good will together. Such a sale is contractual and thereby lawful.

Under the authorities cited by both parties, this court finds no difficulty in agreeing with the trial court that a distance of the 20-mile radius was not unreasonable or greater than was necessary to protect the plaintiff if he needed such protection, in the pursuit of his business or profession. It occurs to this court, moreover, to say that, so far as the public is concerned, it will not be hurt by such an agreement, nor likely to be, since every other physician or surgeon of equal competence is at liberty to practice the same profession within the same limited territory.

The court does not agree with the defendant's contention to the effect that, because the agreement was without time limit, the contract was a nullity as against public policy. No authority was cited to sustain the contention that such an agreement never to practice his profession again in any given territory, or at all, is wholly void. If one has the right to make a contract binding himself not to practice his profession for a great number of years, in a large or limited area, why not be allowed to make the same contract permanent, or at least during the life of the purchaser? What interest has the public in a professional man that would deny to him such liberty of contract?

The court does not think that this was a case in which the balance of convenience should enter in determining the rights of the parties in respect to the restraining order. In conclusion, the court wishes also to observe that there was no pleading by the defendant attacking the agreement on the ground of fraud or mutual mistake. It was a written contract, separately entered into, and it were better, as a matter of practice, to reduce all such contracts to writing, separately, and not to burden title papers therewith, in which subsequent purchasers would have no concern. However, it was clear from the testimony supporting the court's findings that such agreement was a part of the consideration of the trade, and merged in the latter contract. The consideration of the contract was settled by the trial court, and there was ample evidence to support the finding.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, Chicago, June 9-13. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Association of Genito-Urinary Surgeons, Stockbridge, Mass., May 26-28. Dr. Henry G. Bugbee, 40 East 41st St., New York, Sec'y.
American Climatological and Clinical Association, Atlantic City, May 1-3. Dr. Arthur K. Stone, Framingham Center, Mass., Secretary.
American Dermatological Association, Minneapolis, Minn., June 5-7. Dr. Udo J. Wile, 211 East Huron Street, Ann Arbor, Mich., Secretary.
American Gastro-Enterological Association, Atlantic City, May 5-6. Dr. John Bryant, 338 Marlborough Street, Boston, Secretary.
American Gynecological Society, Hot Springs, Va., May 15-17. Dr. A. H. Curtis, 104 South Michigan Avenue, Chicago, Secretary.
American Laryngological Association, Swampscott, Mass., June 2-4. Dr. George M. Coates, 1811 Spruce Street, Philadelphia, Secretary.
American Laryngological, Rhinological and Otological Society, St. Louis, May 29-31. Dr. W. H. Haskin, 40 East 41st Street, New York, Sec'y.
American Neurological Association, Philadelphia, June 5-7. Dr. Frederick Tilney, 870 Madison Avenue, New York, Secretary.
American Ophthalmological Society, Hot Springs, Virginia, May 26-28. Dr. T. B. Holloway, 1819 Chestnut Street, Philadelphia, Secretary.
American Orthopedic Association, Baltimore, May 15-17. Dr. Forrest P. Willard, 1630 Spruce Street, Philadelphia, Secretary.
American Otological Society, Swampscott, Mass., June 3-5. Dr. Thomas J. Harris, 104 E. 40th Street, New York, Secretary.
American Pediatric Society, Pittsfield, Mass., June 5-7. Dr. H. C. Carpenter, 1805 Spruce Street, Philadelphia, Secretary.
American Psychiatric Association, Atlantic City, June 3-6. Dr. C. Floyd Haviland, Drawer 18, Capitol Station, Albany, N. Y., Secretary.
American Radium Society, Chicago, June 9-10. Dr. Edwin C. Ernst, Humboldt Bldg., St. Louis, Secretary.
American Society of Clinical Pathologists, Rochester, Minn., June 5-7. Dr. Ward Burdick, 652 Metropolitan Building, Denver, Secretary.
American Society of Tropical Medicine, Chicago, June 9-10. Dr. B. H. Ranson, Bureau of Animal Industry, Washington, D. C., Secretary.
American Urological Association, Atlantic City, June 3-5. Dr. Homer G. Hamer, 723 Hume-Mansur Building, Indianapolis, Secretary.
Arkansas Medical Society, Fayetteville, May 20-22. Dr. William R. Bathurst, 810 Boyle Building, Little Rock, Secretary.
Associated Anesthetists of the United States and Canada, Chicago, June 9-10. Dr. F. H. McMechan, Avon Lake, Ohio, Secretary.
Association of American Physicians, Atlantic City, May 6-7. Dr. Thomas McCrae, 1929 Spruce Street, Philadelphia, Secretary.
California Medical Association, Los Angeles, May 12-15. Dr. Emma W. Pope, Balboa Building, San Francisco, Secretary.
Connecticut State Medical Society, Hartford, May 28-29. Dr. C. W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.
Georgia, Medical Association of, Augusta, May 9-11. Dr. Allen H. Bunce, Healey Building, Atlanta, Secretary.
Hawaii, Medical Society of, Honolulu, April 26-28. Dr. W. K. Chang, McCandless Block, Honolulu, Secretary.
Illinois State Medical Society, Springfield, May 6-8. Dr. W. D. Chapman, Silvis, Secretary.
Iowa State Medical Society, Des Moines, May 7-9. Dr. T. B. Throckmorton, Bankers Trust Building, Des Moines, Secretary.
Kansas Medical Society, Wichita, May 7-8. Dr. J. F. Hassig, 804 Elks Building, Kansas City, Secretary.
Massachusetts Medical Society, Boston, June 6-7. Dr. W. L. Burrage, 182 Walnut St., Brookline, Secretary.
Medical Library Association, Chicago, June 9-10. Dr. John Ruhrah, 11 East Chase St., Baltimore, Secretary.
Medical Women's National Association, Chicago, June 9-10. Dr. M. J. Potter, First National Bank Building, San Diego, Calif., Secertary.
Mississippi State Medical Association, Jackson, May 13-15. Dr. T. M. Dye, Clarksdale, Secretary.
Missouri State Medical Association, Springfield, May 6-8. Dr. E. J. Goodwin, 3529 Pine Street, St. Louis, Secretary.
National Tuberculosis Association, Atlanta, Ga., May 7-10. Dr. George M. Kober, 370 Seventh Avenue, New York, Secretary.
Nebraska State Medical Association, Omaha, May 13-15. Dr. R. B. Adams, 1013 Terminal Building, Lincoln, Secretary.
New Jersey, Medical Society of, Atlantic City, June 5-7. Dr. J. B. Morrison, 97 Halsey Street, Newark, Secretary.
New Mexico Medical Society, Santa Fe, May 27-29. Dr. Charles M. Yater, Roswell, Secretary.
Ohio State Medical Association, Cleveland, May 13-15. Mr. Don K. Martin, 131 East State Street, Columbus, Secretary.
Oklahoma State Medical Association, Oklahoma City, May 13-15. Dr. C. A. Thompson, 508 Commercial Nat'l Bank Bldg., Muskogee, Sec'y.
Radiological Society of North America, Chicago, June 6-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Rhode Island Medical Society, Providence, June 5. Dr. I. W. Leech, 369 Broad Street, Providence, Secretary.
Texas, State Medical Association of, San Antonio, April 29-May 1. Dr. Holman Taylor, 207½ W. 11th Street, Fort Worth, Secretary.
Utah State Medical Association, Logan, June 19-21. Dr. William L. Rich, Boston Building, Salt Lake City, Secretary.
Wyoming State Medical Society, Cody, June 17-19. Dr. Earl Whedon, Sheridan, Secretary.

TENNESSEE STATE MEDICAL ASSOCIATION

Ninety-First Annual Meeting, Held at Knoxville, April 7-10, 1924

The President, DR. H. L. FANCHER, Chattanooga, in the Chair

Deficiency Diseases in Ophthalmology and Otolaryngology

DR. J. A. STUCKY, Lexington, Ky.: In my fifteen years' observations among the people of the mountains of Kentucky, as well as in private practice, public health clinics and orphanages, I have observed that many ophthalmologic and otolaryngologic diseases were local manifestations of a systemic disorder, the chief factor being in the intestinal canal. The increasing number of functional and organic disturbances due to diseased tonsils and adenoids, teeth, the large percentage of children underweight, the prevalence of rickets, small jaws and teeth which are irregular, poorly developed and decay easily, with the increasing evidence of endocrine imbalance and dysfunction have become a source of deep anxiety to the medical profession as well as to the laity. The cause of these have been proved to be in the food, and our colleges and universities are now answering the demand for scientific supervision of diet in health and disease. The greatest deficiency we have found to be lack of protective material, fat soluble vitamin A, found in milk and butter. With adequate amounts of milk, corn bread, whole wheat bread, tomatoes, beans and peas we could produce physically fit people, but these foods must be rightly proportioned. Especially gratifying results have been noticed in the treatment of trachoma and catarrhal and suppurative conditions of the ear, nose and sinuses, and the belief is emphasized that one of the etiologic factors of trachoma will probably be found to be the same as that of keratomalacia, xerosis and xerophthalmia. Cases of atrophic and hypertrophic rhinitis and the majority of nasopharyngeal conditions of a lithemic nature are due to disturbed calcium metabolism in which the alkali reserve is greatly diminished.

The Nonsurgical Management of Squint

DR. LUTHER C. PETER, Philadelphia: After operation, nonsurgical measures are of greatest importance. At this stage of the treatment, the amblyoscope is replaced by the stereoscope. The operative intervention should be so precisely performed that the images of the two eyes are brought close enough for fusion training by means of the stereoscope. A half hour's daily practice with this instrument will be a wonderful aid in bringing about single binocular vision if the amblyopia is not insurmountable. This instrument demands greater respect than usually is accorded it. It acts as a stabilizer and improves the muscular coordination necessary for the correct execution of innervational impulses. It is especially valuable in esophoria and in the postoperative treatment of squint. A cure of squint should be effected, if possible, by nonsurgical measures. If surgery becomes inevitable, nonsurgical treatment should be instituted before and after operation, to make the operative procedure curative rather than cosmetic. Our failures in effecting cures, in which success is potentially present, can be much reduced by greater attention to details. These essentials are: (1) the opportunity for study in infancy and early childhood when the chances for developing a fusion faculty are best, and the prevention of amblyopia is possible; (2) careful refraction, which must be followed up from year to year; (3) the prevention of amblyopia, or its correction by suitable training; (4) training of the fusion faculty by means of the amblyoscope, and (5) fusion training after operation by means of the stereoscope.

Operative Technic in Certain Cataract Operations

DR. J. MCCHESNEY HOGSHEAD, Chattanooga: The operation to which I refer is nothing more than a "bridge cataract operation." I would recommend it in cases in which eyes have undergone injuries, like punctured cornea or sclera or in eyes showing plus tension. This operation works extremely well in patients with prominent eyeballs, receding forward and shallow orbits. It has the advantages over the "cornea stitch operation" that the eye heals much more

rapidly, infection is reduced to a minimum, and the patient does not have to be in bed longer than twenty-four hours.

Milk Injection in Inflammatory Eye Diseases

DR. R. H. NEWMAN, Knoxville: The technic that I have used since the beginning is as follows: Whole milk is boiled ten minutes, and cooled to about 100 F.; then the dose is drawn with the syringe from the center of the container to avoid coagula and fat. The skin of the gluteal region or abdomen is painted with iodin and the injection made in the deep subcutaneous tissue. From 1 to 5 c.c. is given as the initial dose; subsequent doses may be increased, but I have never found it necessary to give over 6 or 8 c.c., and do not think it necessary. Some local reaction follows, the site is painful, and a small induration persists for some time, but I have never seen an abscess follow an injection.

I do not think it necessary to give more than four to six doses; four is ordinarily sufficient, for if the case is suitable there is so much improvement by that time that more is not needed, and if the patient is not improving it is useless to carry the treatment further. The more acute and more recent the case, the better the result and the more marked the improvement. Parenteral injections of milk should be used on account of the rapidity of action; powerful analgesic power; rapidity with which it decreases swelling and brings about a reparative process; freedom from anaphylaxis and serum sickness; cheapness; convenience (it is everywhere obtainable), and absence of elaborate preparation.

Glaucoma

DR. WALTER S. DOTSON, Lebanon: I will mention only the neglected treatments, which consist in hunting out, running down and clearing up any focal infection in the sinuses, tonsils, teeth or anywhere else. Nonoperative treatments consist of elimination through the bowel, kidney and especially the skin. The pupil should be kept contracted by physostymin (eserin) ointment, from 0.5 to 1 per cent., and the pain relieved by hot compresses applied fifteen minutes at intervals of one, two or three hours. The tension of the eye can be lowered 10 degrees, by the tonometer, by one minute massaging of the eyeball through the upper lid, with the finger tips, just as one would use the tips of the two index fingers, on the eye, through the lid, pressing alternatingly with one and then the other to determine or, rather, to approximate the amount of tension in the eyeball. This eye massaging should be done by oneself, one's assistant or the nurse whom one has taught. I learned this treatment accidentally several years ago, and have been using it myself ever since, but have not reported it before. I do not claim to be its originator.

Conservation of Vision

DR. H. E. CHRISTENBERRY, Knoxville: The effect of impaired vision is varied. Some children accept the situation as it is, becoming dull, stupid and indifferent to the higher and better acquisitions of life, often are considered mean and are punished for something over which they have no control. Others, ambitious by nature, by persistent exercise of the organ may develop sufficient accommodative power to overcome part of the defect. When all that can be done in a medicinal and hygienic way to put the patient into good general physical condition has been accomplished, he should be fitted with the proper glasses, by an oculist who is capable of doing work correctly. It is just as important to know when not to put glasses on a patient as it is to know how, when and what kind to put on. The chief object of accurate refraction is to improve the vision and the general ability of the patient. Cycloplegic drugs are used to hold the ciliary muscles in abeyance to render the accommodative power nil, or temporarily paralyze the muscle until the eye can be properly measured and fitted. The optometrists advise against the use of a cycloplegic because the law does not permit them to use drugs. We do not advise it in all cases; it could do much harm in some cases, which is another reason for qualified and trained men to fit glasses. The majority of those who need glasses can see perfectly well without them and in many instances without serious discomfort, but they do so at the expense of undue nervous and muscle energy. In the industrial field, a large number of cases occur in which the apparently innocent lodgment of some small particle on the eyeball has resulted in the loss of much time and a part or all of the vision in the involved eye. Every physician should perfect the art of everting the upper lid. The "shop oculist" who has a specially prepared sharp piece of steel, dirty toothpick, match or some similar instrument for removing foreign bodies from the eyes of fellow workmen is a menace and a most costly man to his employer.

Deafness from Syphilis

DR. JULIAN B. BLUE, Memphis: The prognosis is always to be guarded. Some cases show a speedy and remarkable comeback after antisyphilitic treatment; others are not so fortunate, and some receive no benefit. Cases that relapse have a poor outlook. Treatment consists of antisyphilitic measures. Here there seems to be some discussion as to whether the arsenical drugs should be used. There are those who contend that the condition is likely to be made worse by the injection of these. Others insist that the lack of improvement is caused by insufficient treatment. In the cases that I have seen, arsphenamin was given by the respective physicians, and there were no bad effects from taking the drug; some have shown a good recovery of hearing. Deafness from hereditary syphilis is generally found associated with interstitial keratitis and Hutchinson teeth, thus making the classical triad. This form of deafness is generally seen in the poorer classes, in people in whom little or no treatment has been received and in whom overcrowding, undernourishment and other poor hygienic conditions abound. The better classes also have syphilis, but they have more treatment and better living conditions, which accounts for the lower rate of this form of deafness. The loss of hearing may come on early in life or make its appearance at the time of puberty. The changes in the hearing apparatus due to congenital syphilis are described as a neuritis following a syphilitic meningitis, or to changes in the bony capsule of the labyrinth.

End-Results in Intranasal Sinus Operations

DR. STEWART LAWMILL, Chattanooga: In a study of thirty cases of paranasal sinus infection with operation by the intranasal route, twenty patients were completely cured, four had to be operated on more than once, and six were relieved of the symptoms of pain and toxemia only, the discharge continuing more or less unabated by the operative procedure. These cases ranged from six weeks to eight or ten years in duration. Although the intranasal route is not all that could be expected, it offers with persistent after-treatment almost the same results as do the radical operations, and without the dangers, scarring and other unsatisfactory sequelae that often attend the radical procedure.

The Personality of the Patient

DR. STEWART R. ROBERTS, Atlanta, Ga.: Medicine aims to explain the patient in terms of diagnosis, and to serve the patient in terms of treatment. This treatment may be with materia medica, surgery, physical therapy, rest or exercise, massage or electricity, climate or baths; with psychic treatment, by a knowledge of the personality of the patient. We can view the patient in a perfectly common sense way and fit the facts of his personality into the practical data of clinical medicine. There is nothing so scientific as common sense. The patient is more than a disease; he is a complete psychobiologic unit. We have been good anatomists and poor psychologists. Probably the next great function of scientific medicine as a whole is the study of the relations of the mind and the body. The patient with abnormal psychology is too often uninteresting to the clinician. In a large sense, the physician should be the best psychologist. Psychology becomes a scientific study of the behavior of human beings as an outward manifestation of complex mental processes. The whole universe is a question mark, and every patient is a little question mark who brings not only his disease, if he has any, but also the impression that life has made on his personality. It takes but little time to tap the psychology and the personality of the patient. It is far from necessary in every case, but in those

patients without apparent physical reason after careful study of their complaints, in the extremely temperamental, the emotional and the frankly psychoneurotic, it is the evident method. To consider each patient as a human problem and to study him in his own individual "setting" in life, when necessary, is to enlarge the vision and the function of clinical medicine. A personal medicine is no less than a scientific medicine. Once satisfied that there are no gross pathologic changes, further and more confident search of the personality is in order. Caution, conservation and faith are all essential.

Urinary Calculi

DR. IRVIN ABELL, Louisville, Ky.: Urinary calculi are of bacterial origin. In lithiasis of the urinary tract, stones are present in two or more organs in from 10 to 15 per cent. Twelve of the 118 cases reported presented stones in two or more organs, a percentage of 9.5. In renal and ureteral calculi, pain is the chief symptom in 70 and 98 per cent., respectively; in bladder calculi, urinary frequency is the chief symptom in 97 per cent. In renal and ureteral calculi, microscopic blood is present in 65 and 85 per cent., respectively. In bladder calculi, microscopic blood is present in 62 per cent., and microscopic pus in 100 per cent. Anuria develops when both ureters become blocked by stones or when the ureter of the only functioning kidney becomes blocked by stone. Reasonable efforts should be made to secure the spontaneous passage of small stones, one-fourth inch or less, situated in any portion of the urinary tract. Such efforts consist in the use of the cystoscope, of ureteral catheterization with injection of papaverin or olive oil at or above site of stone lodgment, and the stimulation of diuresis by drinking an abundance of water. Such methods should not continue to be relied on in the presence of active infection, continued colics without downward progress of stone, or where there is marked hydro-ureter above the site of the stone impaction. When bilateral nephrolithiasis exists, the less affected side should be operated on first. Pelvilithotomy, when feasible, is to be preferred to nephrolithotomy, in that it conserves renal tissue and renders less liable the occurrence of secondary hemorrhage. If the renal tissue shows much destructive change as a result of infection, nephrectomy is the preferable procedure, granted the presence of a healthy opposite kidney. The retention of such kidneys frequently means the recurrence of stone. Before all operations for removal of urinary calculi, tests for renal efficiency should be made. If operation is to be done on the kidney or the ureter, the test should be differential. All urine containing pus and blood, either one or both, calls for urologic examination of patients from whom obtained. The roentgen ray, cystoscope and ureteropyelogram give accurate knowledge as to size and location of calculi. When properly interpreted, the chance for error is reduced to a minimum.

Management of Carcinoma of the Uterus

DRS. W. S. ANDERSON and W. S. LAWRENCE, Memphis: If the growth involves the fundus, we advise operation to be followed in two or three weeks, depending on the patient's general condition, by irradiation of the whole pelvis either by roentgen ray alone or by roentgen ray and radium. If the case is advanced of the so-called frozen pelvis type, some of the most brilliant results will be obtained. Many of these patients will prove radiosensitive and may be carried on to a complete symptomatic cure and a few to complete cure. In these cases of widespread involvement we believe it is more reasonable to begin the treatment by saturating the whole pelvis with all the high voltage roentgen-ray therapy this particular patient can stand, with the view of preventing further involvement of healthy tissue. As soon as the patient has recovered from the depressing effect of this treatment, which must not be made so intensive that the recovery is too long delayed, radium should be given either within or against the cervix. In two cases the results were excellent.

Cleft Palate

DR. J. P. BAIRD, Dyersburg: Adults can be improved, but every case in the adult is a neglected case and could have been done more perfectly during infancy. There are two exceptionally good reasons for the early operation on the palate: The flexibility of the soft cartilaginous maxillae and the fact that articulation has not been faultily established. The lips should not be operated on first during early childhood for the reason that even the small amount of constant pressure or tension produced by the closed lip on the anterior part of the cleft produces some closure of the anterior part, without causing posterior closure. This leaves the superior alveolar border out of alinement with the lower, which can never be perfectly corrected. It also limits to a degree the room needed during the repair of the hard palate. We should attempt only to get union of the alveolar arch and hard palate at the first operation, as the complete closure of the soft palate at this time prolongs the operation to the point of great risk, and probably would result in failure to get union of the posterior portion. The general condition of the patient should be normal, and all pathologic conditions about the nose, throat and mouth should be corrected. The results obtained will depend on the care and sense of proportion with which the flaps are shaped, the complete and even denudation, the relief of tension, perfection in apposition and suture placement, and careful attention to dressings and apparatus to relieve all strain on sutures.

Sterility in the Female

DR. FRANK D. SMYTHE, Memphis: Many cases of sterility are the result of a cause that is remediable. Success or failure attends our efforts according to our interest in the patients. The bedside is the place for a diagnosis to be made, and the physician who is going to treat the case is the man who should make the diagnosis.

Immediate Repair of Birth Lacerations of the Cervix

DR. JOHN B. HASKINS, Chattanooga: In discussing the feasibility of immediate trachelorrhaphy, it is only fair to quote the commonest objections raised against this procedure. Outstanding is increased danger of infection. Morbidity is not materially influenced if aseptic precautions are taken. It requires a good deal of experience in recognizing cervical tears at the end of labor. In fact, this is the most difficult task in the entire procedure, and can be overcome only by experience. That primary cervical repair prevents free drainage of the lochia is lacking in logic, because when such repair is done properly one only restores the outlines of a normal cervix. The technic of cervical repair will always be difficult unless carried out under proper surroundings. It is a procedure not to be undertaken lightly, since more harm than good may be done unless every precaution of asepsis linked with obstetric and surgical skill is put forth. I believe that immediate cervical repair is advisable if performed by an experienced man under ideal conditions.

Cooperation of Surgeon and Radiologist in Malignancy

DR. S. S. MARCHBANKS, Chattanooga: Since surgical measures alone have proved unsatisfactory in the majority of cases of deep cancer, and since the older methods of irradiating with the roentgen ray alone and in combination with radium have not come up to expectations, it seems to me to be only fair to the patient for the surgeon and radiologist to work out a plan. Deep roentgen-ray therapy, in combination with radium when indicated, has come into great popularity, and after trying this out for one and a half years, I have come to the conclusion that I can get still better results by a combined method of surgically uncovering my malignancies whenever possible and getting the so-called lethal dose directly into the tumor, using the roentgen ray over the general area and radium needles buried into the areas that are suspicious and are not freely accessible to the roentgen ray. These may be withdrawn even after almost complete closure.

The radiologist should see the patient twice to the surgeon's once. Experience has shown that irradiation not only destroys many cancer cells, paralyzes many others, and chokes off still more by the fibrosis it produces, but also produces a degree of immunity to the growth for a time. When, for any reason, irradiation directly into surgically exposed tissues is contraindicated, irradiation should precede surgical removal and follow in a short time. This method is particularly applicable in breast carcinoma, and often in such cases as malignancy of the bone or periosteum, and practically any growths that are near the surface and why not of the gastro-intestinal tract and uterus? In the last one and a half years I have had only 6.4 per cent. mortality, taking all cases, early and advanced.

(To be continued)

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

68: 1-148 (March) 1924

Thyroid Apparatus. XIX. Effects of Loss of Thyroid and Parathyroid Glands on Growth of Albino Rat. F. S. Hammett, Philadelphia.—p. 1.
Factors Influencing Production of Insulin. F. G. Banting and S. Gairns, Toronto.—p. 24.
*Cardiac Acceleration in Absence of Inhibitory Center. J. Tulgan, New York.—p. 31.
"Feminine" Behavior in Adult Male Rats. C. P. Stone, Stanford University, Calif.—p. 39.
Paradoxical Pupil Constriction Following Lesions of Proprioceptive Paths. J. Byrne, New York.—p. 42.
Temperature Records of Alaska Fur Seals. G. D. Hanna.—p. 52.
Physiologic Action of Ionizing Radiations. I. Ionization by Beta-Radiation. A. C. Redfield and E. M. Bright, Boston.—p. 54.
Id. II. In Path of Alpha-Particle. A. C. Redfield and E. M. Bright, Boston.—p. 62.
*Scrotum as Temperature Regulator for Testes. C. R. Moore and W. J. Quick, Chicago.—p. 70.
*Experimental Dehydration: Changes in Blood Composition and Body Temperature. N. M. Keith, Rochester, Minn.—p. 80.
Vitamin A and Exercise in Relation to Follicular Atresia in Opossum. C. Hartman, Austin, Tex.—p. 97.
Effect of Colored Backgrounds on Area of Color Fields. A. D. Bush and R. S. McCradie, University, N. D.—p. 103.
Competency of Ureter-Vesical Valves. A. D. Bush and R. S. McCradie, University, N. D.—p. 107.

Cardiac Acceleration in Absence of Inhibitory Center.—The experiments on cats made by Tulgan show that the increase in heart rate above that of the completely denervated heart cannot be regarded as being due to inhibition of inhibition, but must be due to some accelerator influence. An increase in the heart rate may occur independently of the cardio-inhibitory center. Provided the heart is not beating at its physiologically maximum rate, a definite increase in the rate may be obtained by stimulation of an afferent nerve after the vagi have been sectioned.

Scrotum as Temperature Regulator for Testes.—Moore and Quick demonstrated that the temperature on the inside of the scrotum is decidedly lower than that of the peritoneal cavity at the same moment. The difference in the temperature of the two cavities varies as the external environmental temperature varies. A needed link in the chain of evidence that seminiferous tubule degeneration in cryptorchid testes, natural or experimental, is due to the effects of an abnormally high peritoneal cavity temperature as compared with that of the scrotum or the normal environmental temperature for the testes, has been added. The authors believe that the evidence presented by them is sufficient to warrant the conclusion that physiologically the scrotum is a local thermoregulator for the testes. It possibly contributed materially to the evolution of the mammalian group.

Experimental Dehydration.—Keith's study of the blood and circulation after the production of experimental dehydration revealed increased viscosity and hemoglobin concentration, distinctly diminished volume of plasma, but normal arterial blood pressure. There was also indirect evidence of diminished blood volume flow. The blood and circulation were rapidly restored to normal if the animal was given an adequate amount of water within a few hours of the onset of dehydration.

American Journal of Roentgenology and Radium Therapy, New York

11: 223-310 (March) 1924

Spondylolisthesis a Common Lumbosacral Lesion. W. B. Bowman, Los Angeles.—p. 223.
Bone Dystrophies of Variola. J. W. Cathcart, El Paso, Texas.—p. 229.
Teleroentgenography as Aid in Orthopedic Measurements. P. M. Hickey, Ann Arbor, Mich.—p. 232.
*Roentgenologic Evidence of Apparently Healed Miliary Tuberculosis of Lungs. E. S. Blaine, Chicago.—p. 233.
*Roentgen Ray in Diagnosis of Atypical Pregnancies; Two Cases of Anencephaly Diagnosed Before Birth. D. Spangler, Dallas, Tex.—p. 238.
Treatment of Superficial Malignancy with Radium, Roentgen Rays and Electrothermic Coagulation. J. T. Stevens, Montclair, N. J.—p. 241.
Surgical and Roentgen-Ray Treatment of Carcinoma of Rectum. E. A. May, Orange, N. J.—p. 246.
Roentgen-Ray Treatment of Fibroids of Uterus and of Menorrhagia and Metrorrhagia Not Due to Malignancy. J. D. Williams, Brooklyn.—p. 252.
Treatment of Cancer Medical Rather Than Physical Problem. H. J. Ullmann, Santa Barbara, Calif.—p. 256.
Control of Hyperthyroidism. K. Dunham and J. H. Skavlem, Cincinnati.—p. 260.
*Roentgen Ray in Pertussis. R. D. Leonard, Boston.—p. 264.
Measuring Output of Deep Therapy Machines by Duane Method and Friedrich Iontoquantimeter. G. E. Pfahler and B. D. Widmann, Philadelphia.—p. 267.
Effects of Shorter Wave-Length Roentgen Ray on Gastric Secretion. S. A. Portis and R. Ahrens, Chicago.—p. 272.
*Roentgen-Ray Cachexia. C. L. Martin and F. T. Rogers, Dallas, Tex.—p. 280.
Contour of Isolated Entire Duodenum. J. Buckstein, New York.—p. 293.
Diagnostic Needle and Specimen Obtainer. J. Muir, New York.—p. 294.

Healed Miliary Tuberculosis.—Blaine reports three cases that he regards as instances of healed, calcified miliary tuberculosis of the lungs.

Roentgen-Ray Diagnosis of Pregnancy.—Spangler urges that every pregnant woman showing anything abnormal should have roentgenograms made. They give valuable information even though it be in a negative sense. Fetal abnormalities can be more accurately determined by roentgenograms than by any other method.

Roentgenotherapy in Whooping Cough.—In the opinion of the staff of the Floating Hospital, the roentgen ray is one of the best means for at least controlling the severe symptoms of whooping cough. In a series of 400 treated cases, the average duration of the disease was 5.5 weeks. In a series of 200 untreated cases the average duration was 8.7 weeks. These figures are interpreted as showing that the roentgen ray tended to shorten the course of the disease.

Roentgen-Ray Cachexia.—Experiments by Martin and Rogers showed that a large dose of roentgen rays delivered to the entire abdomen of a dog produces a rapid death a few days after exposure. Smaller doses produce a rapid cachexia followed by death in two or three weeks; still smaller doses produce no noticeable effect. A large dose of roentgen rays delivered directly to a single isolated loop of the small intestine of a dog produces a slowly progressive cachexia. The animal may succumb in about two months during the stage of intestinal ulceration, or after five or six months from partial obstruction. Fat absorption is inhibited when heavy doses of roentgen rays reach the small intestine. The output of intestinal mucus may be markedly increased by heavy doses of roentgen rays delivered to the epithelium.

American Journal of Tropical Medicine, Baltimore

4: 113-231 (March) 1924

Sweetened Condensed, Evaporated and Powdered Milks for Feeding Infants in Tropics. W. E. Deeks, New York.—p. 113.
*Pfeiffer Reaction in Yellow Fever. H. Noguchi, New York.—p. 131.
*Malaria Control Demonstrations in Palestine. I. Malaria Control and Cost. I. J. Kligler, Jerusalem, Palestine.—p. 139.
*Fish as Antimosquito Agencies in Tropics. D. M. Molloy, Managua, Nicaragua.—p. 175.
Turtle Trap for Protection of Gambusia in Hatcheries. W. M. Monroe, Andalusia, Ala.—p. 195.
Natural Breeding Places of Anopheles Mosquitoes in Louisiana. G. H. Bradley, Washington, D. C.—p. 199.

Pfeiffer Reaction in Yellow Fever.—According to Noguchi a positive Pfeiffer reaction obtained with serum from persons recently recovered from an infection clinically suspected of having been yellow fever provides confirmatory evidence of the disease. On the other hand, a negative Pfeiffer reaction may occasionally be obtained in the case of persons who have had an undoubted attack of yellow fever. Hence the diagnosis of yellow fever clinically established cannot be set aside because of the negative outcome of a Pfeiffer test.

Malaria in Palestine.—The observations made by Kligler bring out that not only can malaria be brought under control by the method employed in Panama and elsewhere, but that this is the only practical procedure for solving a large part of the malaria problem in Palestine. In each of the areas

concerned a reduction in malaria incidence of between 70 and 90 per cent. was achieved. Malaria control is feasible with relative small expenditures in some of the worst areas in Palestine, and there is consequently every reason to expect that it will be equally feasible elsewhere.

Fish as Antimosquito Agencies.—Molloy's experience is that fish control of malaria is a most valuable adjunct. It is not a panacea; there are many conditions which hinder its effective use. Molloy urges that they be tried when conditions offer even a slight chance of success. With a little intelligent help they will succeed more frequently than they will fail.

American Review of Tuberculosis, Baltimore

9: 1-87 (March) 1924

Peribronchial Tuberculosis; Importance of Hilum. J. A. Honeij, Boston. —p. 1.
*Blood Lipase in Pulmonary Tuberculosis. J. S. Woolley, Loomis, N. Y. —p. 32.
Respiratory Organs in Health and Disease. XII. Effects of Bituminous Coal Mining on Vital Capacity of Lungs. J. A. Myers, Minneapolis. —p. 49.
Id. XIII. Effects of Senility on Vital Capacity of Lungs. J. A. Myers and L. H. Cady, Minneapolis.—p. 57.
*Hematologic Studies on Experimental Tuberculosis of Guinea-Pig. II. Effect of Certain Drugs on Blood Picture in Tuberculosis. Biochemistry and Chemotherapy of Tuberculosis. XXXI. L. Bender and L. M. de Witt, Chicago.—p. 65.
*Diaphragmatic Excursion and Mediastinum in Lateral Recumbent Posture. G. B. Webb and J. A. Sevier, Colorado Springs, Colo.—p. 72.
*Influence of Allergic Vasomotor Rhinitis on Pulmonary Tuberculosis. I. S. Kahn, San Antonio, Tex.—p. 77.
*Serum Calcium in Surgical Tuberculosis. O. Barkus, Perrysburg, N. Y. —p. 81.

Blood Lipase in Pulmonary Tuberculosis.—The findings of Woolley in a study of more than 150 bloods tend to show that the so-called lipase or esterase may be a true lipase in the sense that it plays some part in the general fat metabolism of the body, but its relation to the destruction of the tubercle bacillus is not at all proved. It is present in many animals. It might be looked on as an index of functional activity, for it is apparently high when the metabolic powers are high and reduced when metabolism is sluggish. With the wasting and lessened functional activity, which accompanies advanced cases of tuberculosis, it is distinctly decreased, probably reaching its lowest point just before death. Apparently, the same thing is true of cancer and other wasting diseases characterized by cachexia. In evidence secured by Woolley, there is nothing to show that the lipase reduction is peculiar to tuberculosis, and represents the loss of a specific resistance factor. It might just as well be interpreted as evidence of the gradual weakening of the vital processes, of which the fall in lipase is but a single manifestation.

Effect of Drugs on Blood Picture in Tuberculosis.—No effect on the blood picture in tuberculous animals nor in nontuberculous controls could be demonstrated by Bender and De Witt with treatment by methylene blue, mercuric chaulmoogric acid, mercurized methylene blue, new methylene blue or neutral red, and two new mercury salts. Paranitro-orthoacetoxymercuri-monomethylaniline prevented the development of an eosinophilia in guinea-pigs with chronic tuberculosis and decreased the eosinophil count in nontuberculous animals with Kurloff bodies. Mercurized methylene blue seemed to act as a poison on those elements of the blood which are produced in the bone marrow, increasing the anemia and inhibiting leukocytosis in acutely tuberculous animals with secondary infections.

Effect of Posture on Diaphragm Excursion.—Normal young men between 17 and 22 were studied with the fluoroscope by Webb and Sevier. In all subjects the heart and mediastinum became displaced by the posture toward the chest wall of the dependent side. In most subjects, the diaphragm on the dependent side at first increased its excursion. In all cases this diaphragm, forced up by the abdominal viscera, held a relatively higher position than that of the upper half. The preliminary increase of diaphragm excursion on the dependent side was associated with an increase in the vesicular murmur in the base on that side. At the end of from thirty to sixty minutes the increase in diaphragm excursion and intensity of basal breath sounds had subsided. The diaphragm movement of the two sides may be equal or reversed. In general, the breath sounds at the apex are less audible on the recumbent side.

Influence of Allergic Rhinitis on Tuberculosis.—In several cases seen by Kahn, attention to the antigenic factors involved, by reducing cough, has led to the clinical betterment of the tuberculous process that previously had not improved as expected. He makes skin tests in every tuberculous case with chronic nasal discharge. It is suggested that some chronic digestive disturbances in tuberculosis may owe their etiology to increased egg or milk consumption. If proper attention is given to the question of the possibility of the existence of allergic factors in one form or another in tuberculosis cases, and especially if the minor degrees of unobtrusive vasomotor rhinitis be tested for and recognized as such, fewer unnecessary nasal operations will be done in tuberculosis cases, their arrestment will be hastened by the removal of another cough producing influence, and an annoying and possibly dangerous complication obviated.

Serum Calcium Values in Tuberculosis.—The calcium concentration of human serum was detertermined by Barkus. It was increased slightly in the destructive, destructive-proliferative and proliferative-destructive groups; was normal in the proliferative group and decreased in the atrophic group.

Annals of Otology, Rhinology and Laryngology, St. Louis

33: 1-304 (March) 1924

George Morewood Lefferts. D. B. Delavan, New York.—p. 1.
Incidence and Pathogenesis of Tonsillar Concretions. C. V. Weller, Ann Arbor, Mich.—p. 79.
Optic Canal in Cases of Optic Nerve Involvement. L. E. White, Boston. —p. 121.
Nasopharyngoscopy Under Negative Pressure. R. P. Scholz, St. Louis. —p. 151.
Laryngeal Tuberculosis. F. R. Spencer, Boulder, Colo.—p. 163.
Functional Hearing Tests. C. C. Bunch, Iowa City.—p. 174.
Electrocautery in Treatment of Laryngeal Tuberculosis. J. B. Greene, Asheville, N. C.—p. 193.
Roentgen-Ray Therapy of Tonsils. E. R. Lewis, Los Angeles.—p. 198.
Intraseptal Implantation in Atrophic Rhinitis. H. L. Pollock, Chicago. —p. 205.
Persistent Otorrhea After Mastoidectomy. F. P. Emerson, Boston.—p. 214.
Operation for Cure of Ozena. W. Freudenthal, New York.—p. 220.
Use of Tissue Juices in Tonsillectomy. J. B. Greene, Asheville, N. C. —p. 228.
Influence of Vision on Nystagmus. C. L. Woolsey, Boston.—p. 235.
Influence of Focal Infection and Means to Meet It. R. Pemberton, Philadelphia.—p. 242.
Vucin (Isoctyl Hydrocuprein Di-Hydrochlorid) in Intracranial Affections. A. Lewy, Chicago.—p. 254.
Amyloid Degenerations of Upper Air Passages. H. E. Thompson, Dubuque, Iowa.—p. 271.
Laryngeal Epilepsy. B. Douglass, New York.—p. 279.
Hearing in Presence of Noise. E. W. Kranz, Geneva, Ill.—p. 283.
Treatment of Postoperative Cavities of Mastoid Process with Rubber Balloons. B. Torok, Budapest, Hungary.—p. 285.

Annals of Surgery, Philadelphia

79: 321-480 (March) 1924

*Prognosis in Giant Cell Sarcoma in Long Bones. W. B. Coley, New York.—p. 321.
*Adamantine Epithelioma of Lower Jaw. Two Cases. J. S. Horsley, Richmond, Va.—p. 358.
*Matas Operation for Aneurysm. H. B. Gessner, New Orleans.—p. 370.
Method of Removing Hernia from Within. G. P. LaRoque, Richmond, Va.—p. 375.
*Influence of Hemorrhage on Mortality in Injuries of Abdomen. J. M. Mason, Birmingham, Ala.—p. 382.
*Partial Gastrectomy for Gastrojejunal Ulcer. D. C. Balfour, Rochester, Minn.—p. 386.
*Surgery of Renal Tuberculosis. E. S. Judd and A. J. Scholl, Rochester, Minn.—p. 395.
Pilonidal Sinus. H. B. Stone, Baltimore.—p. 410.
Complete Outward Dislocation of Patella. N. Winslow, Baltimore.—p. 415.
*Primary Peritonitis. A. A. Zierold, Minneapolis.—p. 418.
*Questions in Gallbladder Surgery. W. Martin, New York.—p. 424.
Anesthesia of Splanchnic Nerve in Abdominal Operations. H. Fischer, New York.—p. 444.
Improved Abdominal Retractor. J. L. DeCourcy, Cincinnati.—p. 454.

Prognosis in Giant Cell Sarcoma of Bones.—Of the fifty cases analyzed by Coley, thirty-two patients are alive; ten have died (nine of metastases, one of nephritis a year and one half after amputation); one patient was in a hopeless condition from metastases when last seen and will probably

die, and seven patients have not been traced. In twenty-four cases the limb was saved. A microscopic diagnosis of "giant cell sarcoma" was made in thirty-eight cases; of "giant and spindle cell sarcoma" in five cases; of "microscopically spindle but from clinical and roentgen-ray examination a typical giant cell sarcoma" in one case. There was no microscopic examination made in six cases. In many cases, the diagnosis was confirmed by several pathologists.

Adamantine Epithelioma of Jaw.—Of the two cases reported by Horsley one seems a direct descendant of remnants of the enamel organ. In the other case, which contained what appeared to be epithelial tissue, the origin is obscure.

Endo-Aneurysmorrhaphy.—In nine cases of aneurysm Gessner operated by the intrasaccular method of Matas. Of the aneurysms four were fusiform, one false, four arteriovenous; of the latter two were varicose aneurysms, two arterial varices. Of the nine cases, four (one false and three arteriovenous) were due to gunshot injury; one to stab wound. Five obliterative operations were done; four restorative and no reconstructive operations. Neither gangrene, hemorrhage nor recurrence has been observed up to this time. There was no mortality attributable to the operation.

Influence of Hemorrhage on Mortality in Abdominal Injuries.—Mason is convinced that the high mortality in cases of abdominal injury is due to hemorrhage and not to the visceral injury per se. Early operation, refinement of technic, lessening the shock of prolonged ether anesthesia by more extensive use of local anesthesia, nitrous oxid or ethylene anesthesia, and the most careful attention to the details of after-treatment are the essentials for lowering this mortality.

Partial Gastrectomy for Gastrojejunal Ulcer.—In eighty-two cases of gastrojejunal ulcers operated on secondarily in the Mayo clinic, and eighty-six of their own cases in which the original operation was performed elsewhere, the method of treatment has been either: (1) excision of ulcer, when small, with enlargement of the original anastomosis; (2) cutting off the gastro-enterostomy, excision of the lesion, closing the opening in the jejunum and stomach, and pyloroplasty; or (3) cutting off the gastro-enterostomy, excision of the lesion, closing the opening in the jejunum, restricting the pyloric end of the stomach, including the opening of the anastomosis, with restoration of continuity by whatever method is best suited to the case. The latter operation, partial gastrectomy, Balfour says, has distinct advantages, particularly in its end-results.

Surgery in Renal Tuberculosis.—Eight hundred and seventy-four patients with renal tuberculosis were treated surgically. Nephrectomy was performed on 863 and an exploratory operation only on nine. Complete postoperative data were obtainable concerning 611 patients. Usually complete lumbar nephrectomy was performed. In a few instances, transperitoneal nephrectomy was performed or the peritoneal cavity was opened while the kidney was being removed by the lumbar route. Such contamination of the peritoneal cavity, according to Judd and Scholl, markedly increases the operative risk. In the presence of a perinephritic abscess, removal of the kidney and drainage of the abscess at the same time increases the operative risk. Two of eight patients died following such procedures. None of the eight patients died on whom the two-stage operation was performed. In eighteen cases of bilateral infection one kidney was removed. Four patients died from anuria immediately after the operation, and ten died during the next eighteen months. Twenty-three patients (2.7 per cent. of 845 who had had unilateral nephrectomy) died the first month after operation. One hundred and ninety-one (31.2 per cent. of the 611 patients) are dead; 358 (58.6 per cent.) are completely cured on an average of four years after operation, and sixty-two (10.1 per cent.) are still having urinary trouble.

Primary Peritonitis.—Twenty-eight cases are analyzed by Zierold. Of the ten cases in which there was no known origin or accompanying disease elsewhere in the body, five patients had pain and vomiting at the onset while the remainder had neither pain nor vomiting. In the eighteen cases accompanied or preceded by other sites of infection only four noted pain as an abdominal symptom and only five vomited. Examination of the available hospital records in all instances shows an early rise of temperature with a rapid development of the septic curve. The few instances of low temperature occurred in adults who had no accompanying disease and who died in a very few days. Leukocytosis is an almost invariable finding, the one exception being a leukopenia in influenza. In contrast to the majority of observations, but in accord with Rabinowitz, diarrhea was an infrequent occurrence, being noted in only three instances. As the condition develops two features become almost constantly in evidence, viz., distention and fluid. In twenty of the twenty-eight cases the records give marked abdominal distention as the chief terminal symptom and at the necropsy fluid in relatively large amounts was found.

Surgery of Gallbladder.—According to Martin, there have been no reports of serious interference with function or loss of nutrition following the removal of the gallbladder, although thousands have been removed during the last forty years. The proof that the gallbladder should be removed for very slight lesions of the wall, accompanied by symptoms of indigestion, seems to Martin not yet sufficiently established. It has not been demonstrated that slight degrees of cholecystitis do not resolve. The prophylactic removal of a normal gallbladder does not seem justified. The proof is not convincing that the majority of infections of the wall of the gallbladder, sufficient to give symptoms, represent a direct extention to its walls from an inflamed liver through the lymphatics. Necropsy records and clinical experience furnish abundant evidence of the very slow progression of lesions in the gallbladder. The removal of the gallbladder for gallstones and well marked lesions of the gallbladder wall, uncomplicated by lesions of the common duct, is accompanied by a low mortality and by excellent results. There is little clinical or necropsy evidence of the association of persistent hepatitis, cirrhosis or pancreatitis when the disease is confined to the gallbladder wall.

Archives of Dermatology and Syphilology, Chicago

9: 293-422 (March) 1924

*Dermatologic Aspects of Rat Bite Fever. P. A. O'Leary, Rochester, Minn.—p. 293.
*Pemphigus Vulgaris: Report of Case. G. W. Covey, Lincoln, Neb.—p. 305.
Histologic Changes Produced Experimentally in Liver and Kidneys of Rat by Arsphenamin and Neo-Arsphenamin. J. A. Kolmer and B. Lucke, Philadelphia.—p. 321.
*Insulin in Diabetic Dermatitis. W. D. Davis and T. J. Calhoun, St. Louis.—p. 340.
*Pathogenesis of Dermatitis, Including Eczema; English Ivy Poisoning. W. J. Highman, New York.—p. 344.
*Treatment of Congenital Syphilis. J. A. Fordyce and I. Rosen, New York.—p. 355.
Inorganic Salts in Blood in Psoriasis and Other Dermatoses. J. F. Schamberg and H. Brown, Philadelphia.—p. 368.

Rat Bite Fever.—Two cases are reported by O'Leary, one of undoubted rat bite fever in a child cured by two intravenous injections of arsphenamin, and one probable case of rat bite fever in which tonsillectomy reduced the value of the therapeutic test without proving the condition to be streptococcal in origin.

Pemphigus Vulgaris with Spinal Cord Changes.—Certain symptoms and findings in a case reported by Covey suggest a chronic low grade infection. Other observations seem to point to possible lesions in the spinal cord, the dorsal roots or their ganglions as the seat of trouble, the skin lesions being merely a manifestation of trophic disturbance in this tissue as a result of the nerve lesions. Definite gross and microscopic lesions were readily demonstrable in the predicted areas at postmortem examination. The case described presented findings in the spinal cord and dorsal roots that have not been described before. These lesions are in such a location and of such character that their possible rôle in the production of the visible lesions of this disease is perfectly evident to Covey.

Insulin in Diabetic Dermatitis.—Davis and Calhoun report a case of quick relief and apparent cure of diabetic dermatitis of five years' standing by means of insulin.

English Ivy Poisoning.—The case described by Highman had been observed by three dermatologists, one of whom

considered it eczema of internal origin; one, seborrheic dermatitis; and one, dermatitis venenata. A man, aged 50, with a seborrheal skin, had repeated attacks of acute dermatitis. He was susceptible to English ivy. On discontinuing exposure to it, his attacks ceased. Specific percutaneous tests, properly controlled, were positive.

Treatment of Congenital Syphilis.—Fordyce and Rosen are convinced that the success of prenatal treatment depends on (1) the duration of the infection, (2) early treatment, and (3) the amount of treatment tolerated. Negative clinical and serologic findings at birth do not always indicate the absence of syphilis. It is advised that routine examinations be made at monthly intervals for the first six months and then every three months for the first two years. Microscopic examination of the placenta may prove of greater value in determining a latent infection than the result of the Wassermann reaction on the blood from the umbilical cord or from the veins during the early months of life. The prognosis in congenital syphilis depends on: (1) the amount of prenatal treatment; (2) the physical condition at birth; (3) the severity of the infection, whether visceral, cutaneous or neural involvement is present; (4) the time treatment is begun; (5) the type of treatment, and (6) the toleration to treatment. An extensive clinical experience is reported.

Archives of Ophthalmology, New York

53: 101-203 (March) 1924

Phaco-Anaphylactic Endophthalmitis. A. N. Lemoine and A. E. Macdonald, Boston.—p. 101.
Convergence Near Point. A. Duane, New York.—p. 119.
Ocular Tuberculosis. W. C. Finnoff, Denver.—p. 130.
Bilateral Detachment of Retina in Two Successive Pregnancies. E. Hill, Richmond, Va.—p. 137.
Synchysis Scintillans in Anterior Chamber: Case. J. N. Evans, Brooklyn.—p. 142.
Posterior Transillumination of Eyeball. G. S. Derby, Boston.—p. 152.
Cataract Operations. H. T. Holland, Quetta, Bauchistan, India.—p. 155.
Ring Sarcoma of Iris. A. B. Bruner, Cleveland.—p. 162.
Trachoma Among Blackfeet Indians. L. W. Fox, Philadelphia.—p. 166.
Compensation Problem as It Relates to Ocular Injury. A. C. Snell, Rochester, N. Y.—p. 172.

Boston Medical and Surgical Journal

190: 533-582 (March 27) 1924

*New Growths in Undescended Testicles. F. B. Lund, Boston.—p. 533.
*Double Inguinal Hernia: Postoperative Complications. J. C. Hubbard, Boston.—p. 536.
Physical Aspect of Nervous Hygiene. J. W. Courtney, Boston.—p. 540.
*Relation of Gallstones to Pancreatitis. M. F. Fallon, Worcester, Mass.—p. 545.
Review of Gastro-Enterology for 1923. A. E. Austin, Boston.—p. 549.

Malignant Tumor in Undescended Testis.—Lund reports four cases of malignancy in undescended testicle. He believes that such malignancy is much more to be feared than in the normal testicle, and that in considering the procedure to be adopted in any given case of undescended testicle, weight should be given to the fact that there is not inconsiderable danger of the development of malignancy.

Pulmonary Complications After Herniotomy.—Hubbard reviews 264 cases of inguinal hernia subjected to operation by various surgeons during one year. Of 206 patients operated on on one side only, twenty-five became septic. Of fifty-eight double operations, eight became septic. There appears, then, to be no greater chance of postoperative wound infection in the double cases than in the single cases. Of the 206 patients on whom the single operation was performed, eight had pulmonary complications. In the fifty-eight cases subjected to a double operation, twelve had pulmonary complications. It appears, therefore, that it is better to refuse to operate on both sides at one sitting in a case of double hernia, not so much for fear of local sepsis as of pulmonary complications.

Relation of Gallstones to Pancreatitis.—Three cases of acute pancreatitis, associated with gallstones, are reported on by Fallon. Incision and drainage of the pancreas were done in two cases. One patient died and one recovered after operation; and one died without operation for the pancreatitis. The signs of upper abdominal peritonitis were present in all. The agonizing pain was described by the patients as "far worse than gallstone colic," and "immeasurably worse than labor pains." The muscular rigidity in all cases in the early stages was not so pronounced as in perforative peritonitis; the tenderness was on deep, rather than on superficial pressure. In none of the patients were fat or muscle fibers seen in the feces, nor was glycosuria present. In all three cases, gallstones and abnormal bile were present in the gallbladder. The previous histories, too, pointed to gallstone colic.

Canadian Medical Association Journal, Montreal

14: 192-278 (March) 1924

Psychoneuroses. N. J. Symons.—p. 195.
*Surgical Treatment of Bronchiectasis. E. Archibald.—p. 197.
*Quinidin and Digitalis in Chronic Auricular Fibrillation and Flutter. K. Gordon.—p. 203.
Portals of Entry of Chronic Metastatic Infections. E. E. Irons.—p. 205.
Intestinal Bands and Adhesions. L. J. Carter.—p. 212.
Bacteriology of Normal and Inflamed Conjunctiva. S. H. McKee.—p. 216.
*Lugol's Solution in Exophthalmic Goiter. E. H. Mason.—p. 219.
Comparison of Kahn Test with Wassermann Test. M. Malcolm.—p. 222.
Internist's Responsibility: Factors Involved in Selection and Classification of Surgical Risks. C. S. McVicar.—p. 225.
Accessory Nasal Sinus Infection. I. R. Smith.—p. 230.

Surgical Treatment of Bronchiectasis.—Archibald feels that certain dangers inherent in the operation of lobectomy might be obviated by bringing the root of the lobe, after its excision, into the skin wound and fastening it entirely outside the chest. In that way the mediastinum would be fixed, a closed pneumothorax would be impossible, and consequently mediastinal flapping with its serious effect on cardiac action would be impossible; any infection of the lung root would at least not likely be communicated to the pleura, even if a mediastinitis might still occur, and the infected disintegrating stump of the lung would be discharged into dressings entirely outside the chest wall. To achieve this, it is obviously necessary to bring the chest wall into the root of the lung. The only way to accomplish this is to remove sufficient of the ribs to allow the chest wall to fall, or be pulled, in on the lung root. The mechanical procedure which safeguards the patient from the dangers of lobectomy in the operation proposed is the preliminary extensive resection of the ribs. A case is cited in which this operation was performed.

Quinidin and Digitalis in Auricular Fibrillation.—The results obtained from the treatment of two cases of pure auricular flutter and one of auricular fibrillation by the administration of digitalis followed by quinidin sulphate are given by Gordon. All three cases were restored to normal rhythm. None of these patients experienced any deleterious effects from the use of quinidin and all three received apparent benefit from it.

Compound Iodin Solution in Exophthalmic Goiter.—Mason shows that compound iodin (Lugol's) solution will control the toxicity arising from regeneration of thyroid tissue following thyroidectomy for exophthalmic goiter. This fact indicates that the increased activity of these regenerated cells is of the same, or closely allied nature as that of the cells of the original gland.

Indiana State Medical Association Journal, Ft. Wayne

17: 67-100 (March) 1924

Trend of Neurologic Surgery. C. F. Frazier, Philadelphia.—p. 67.
Roentgen Ray and Radium in Superficial Malignancies. A. M. Cole, Indianapolis.—p. 71.
Parham-Martin Bands in Fracture of Long Bones. E. B. Mumford, Indianapolis.—p. 76.
Tuberculosis of Bronchial Lymph Glands. T. J. Beasley, Indianapolis.—p. 79.
Syphilis of Lungs. F. E. Sayers, Terre Haute.—p. 83.

Iowa State Medical Society Journal, Des Moines

14: 97-148 (March) 1924

Diphtheria. L. F. Hill, Des Moines.—p. 104.
Medicopsychologic Survey of Morons in Iowa. C. E. Seashore, Iowa City.—p. 110.
Masked Infection Passing as Neurasthenia. P. A. Van Metre, Rockwell City.—p. 114.
Surgical Study of Gastroduodenal Ulcer. J. S. Weber, Davenport.—p. 118.
Dangers in Surgery of Thyroid. J. de J. Pemberton, Rochester, Minn.—p. 124.
Chemistry as Aid to Clinician. H. C. Bradley, Madison, Wis.—p. 125.
Chronic Hypertension. J. H. Powers, Saginaw, Mich.—p. 130.
Postoperative Treatment of Toxic Goiter. A. S. Jackson, Madison, Wis.—p. 133.

Johns Hopkins Hospital Bulletin, Baltimore

35: 65-96 (March) 1924

*Primary "Sarcomatosis" of Leptomeninges. F. R. Ford and W. M. Firor, Baltimore.—p. 65.
*Case of Arsenic Dermatitis in Child, Treated with Sodium Thiosulphate. C. R. Bugg and C. Folkoff, Baltimore.—p. 76.
*Impetigo Contagiosa in Children. D. T. Smith and E. L. Burky, Baltimore.—p. 78.
*Blood Grouping. III. Varied Types of "Group IV" Blood. C. G. Guthrie and J. F. Pessel.—p. 81.
Mechanism in Production of Increased Tension in Hydrophthalmos. C. A. Clapp, Baltimore.—p. 85.
*Physiologic Anatomy of Embryonic Heart. I. P. N. Johnstone.—p. 87.
Interrelations of Fibroblasts in Tissue Culture. C. F. DeGaris, Baltimore.—p. 90.
New Apparatus for Heating Bacterial and Blood Smears. C. F. Elvers, Baltimore.—p. 94.

Primary Sarcomatosis of Leptomeninges.—Four cases of so-called "sarcomatosis" of the leptomeninges are reported, and twenty-eight cases from the literature are given in abstract, by Ford and Firor. The clinical picture is composed in varying proportions of signs of increased intracranial pressure, cranial nerve palsies, signs of meningeal irritation and of involvement of the cord and posterior spinal nerve roots. The pathologic basis is a diffuse invasion of the cerebral and spinal leptomeninges and the subarachnoid spaces by malignant neoplasms resembling sarcomas, which metastasize by way of the cerebrospinal fluid. These growths are of doubtful origin, but many are probably gliomas. The diagnosis depends on the demonstration of "tumor" cells in the spinal fluid and the recognition of the clinical picture, which is variable but usually characteristic.

Arsenic Dermatitis Treated with Sodium Thiosulphate.—The case reported by Bugg and Folkoff is that of a child, 2 years and 3 months old, who after six injections of sulpharsphenamin, developed an eczematous and exfoliative type of dermatitis, which responded well to intravenous injections of sodium thiosulphate. The drug was given in four graduated doses, a total of 1.35 gm. being sufficient to cause practically complete disappearance of the skin lesions in six days.

Impetigo Contagiosa.—Of nine cases of impetigo contagiosa, hemolytic streptococci were isolated by Smith and Burky in six, and *Staphylococcus aureus* in three. The streptococci were not of the same group serologically or culturally. The staphylococci were not of the same serologic group. Ammoniated mercury ointment (one-third the usual strength) was a very effective treatment for the streptococcus but not for the staphylococcus cases. Gentian violet (5 per cent.) was very effective in the treatment of both staphylococcus and streptococcus impetigo.

Types of Group IV Blood.—A fourth iso-agglutinin and a fourth iso-agglutinogen have been demonstrated by Guthrie and Pessel in human blood. Within "Group IV" are included at least four different types of blood as determined on the basis of agglutinin-agglutinogen content. These types are characterized as follows: Type I: Serum contains agglutinins A, B and C; red cells contains the new agglutinogen but not agglutinogens a, b or c. Type II: Serum contains agglutinins A, B, C and also the new agglutinin; red cells contain none of the four agglutinogens. Type III: Serum contains agglutinins A, B and C; red cells contain none of the four agglutinogens. Type IV: Serum contains agglutinins A and B but not agglutinin C; red cells contain none of the corresponding agglutinogens. When applied to certain 'Group IV" bloods, the term "universal donor" is "infelicitous." The bearing of these findings on transfusion is discussed.

Experimental Heart Block in Chick Embryo.—Demonstration of complete heart block in chick embryos during the second, third and fourth days of incubation was made by Johnstone. Heart block was produced by placing ligatures around the heart at a time when, so far known, it possesses neither nerves nor atrioventricular bundle, but consists only of a continuous sheet of muscle cells, the myo-epicardial mantle, surrounding an endothelial tube, the primitive endocardium. It seems probable that conduction through the myo-epicardial mantle is from cell to cell. Furthermore, it has been shown that the normal conduction of the contractile impulse in this mantle is from sinus to atrium, atrium to ventricle, and ventricle to bulbus arteriosus. Heart block was also produced by crushing or placing a ligature around the primitive heart at any level.

Journal of Bacteriology, Baltimore

9: 95-198 (March) 1924

Method in Bacteriology. E. G. Hastings, Madison, Wis.—p. 95.
*Streptococci. VII. Medium for Stock Cultures of Streptococci and Other Bacteria. S. H. Ayers and W. T. Johnson, Washington, D. C.—p. 111.
*Id. VIII. Hydrogen Sulphid Production by Streptococci. S. H. Ayers and W. T. Johnson, Washington, D. C.—p. 115.
Motility of Bacteria as Effected by Hydrogen-Ion Concentrations. G. Reed and D. J. Macleod, Kingston, Cadana.—p. 119.
Quantitative Action of Enzymes of Seven Organisms on Proteins of Milk and on Gelatine. E. H. Parfitt and G. Spitzer, Lafayette, Ind.—p. 123.
Fermentation of Galactose by Saccharomyces Cerevisiae. N. L. Söhngen and C. Coolhaas, Wageningen, Holland.—p. 131.
Penetration of Bacteria Through Capillary Spaces. II. Migration Through Sand. S. Warren and S. Mudd, Boston.—p. 143.
Id. III. Transport Through Berkefeld Filters by Electroendosmotic Streaming. S. Mudd and E. B. H. Mudd, Boston.—p. 151.
Self-Ventilating Constant Temperature Incubator Room. L. D. Felton, Boston.—p. 169.
Coagulation and Sterilization of Loeffler's Medium in Autoclave. M. Dupray, Hutchinson, Kan.—p. 179.
Bacterial Association. I. Biochemistry of Production of Lactic Acid. H. B. Speakman and J. F. Phillips, Toronto.—p. 183.

Culture Medium for Streptococci.—The ingredients of the medium used by Ayers and Johnson are: meat infusion, peptone, gelatin, casein, glucose, Sorrenson's sodium phosphate, sodium citrate and agar. All species of streptococci show a remarkably heavy growth on this medium and remain alive when held at room temperature, averaging 75 F. for at least four months. The luxuriant growth and long life of the cultures grown on this medium are probably due to the consistency of the medium, the presence of casein, the slight amount of sugar which serves as an easily available source of carbon, and the favorable buffering of the medium that may be noted.

Streptococci Produce Hydrogen Sulphid.—Ayers and Johnson have found that certain species of streptococci are able to produce hydrogen sulphid from sulphur compounds. No attempt has been made to apply this test for classification purposes.

Journal of Experimental Medicine, Baltimore

39: 331-495 (March) 1924

*Etiology of Typhus. VI. Skin Lesions in Experimental Typhus of Guinea-Pigs. P. K. Olitsky and J. E. McCartney, New York.—p. 331.
Growth-Inhibitory Substances in Pneumococcus Cultures. H. J. Morgan and O. T. Avery, New York.—p. 335.
Oxidation and Reduction by Pneumococcus. I. Production of Peroxid by Anaerobic Cultures of Pneumococcus. O. T. Avery and J. M. Neill, New York.—p. 347.
Id. II. Production of Peroxid by Sterile Extracts of Pneumococcus. O. T. Avery and J. M. Neill, New York.—p. 357.
Quantitative Factors in "Test Tube Infection." A. L. Bloomfield and A. R. Felty, Baltimore.—p. 367.
*Blood Reaction in Experimental Pneumonia. C. D. Leake, J. L. Vickers and T. K. Brown, Madison, Wis.—p. 393.
*Causes of Gallstone Formation. III. Relation of Reaction of Bile to Experimental Cholelithiasis. D. R. Drury, P. D. McMaster and P. Rous, New York.—p. 403.
*Liver Requirement of Fasting Organism. P. Rous and P. D. McMaster, New York.—p. 425.
Indications of Tissue Specificity in Transplantable Sarcoma. L. C. Strong, Cold Spring Harbor, N. Y.—p. 447.
*Influence of Suprarenals on Resistance. II. Toxic Effect of Killed Bacteria in Suprarenalectomized Rats. W. J. M. Scott, Boston.—p. 457.
*Effect of Pilocarpin on Number of Small Lymphocytes in Circulating Blood Following Ligation of Thoracic Duct. F. C. Lee, Baltimore.—p. 473.
*Relation Between Tumor Susceptibility and Heredity. I. C. J. Lynch, New York.—p. 481.

Skin Lesions in Experimental Typhus.—Experimental studies by Olitsky and McCartney showed that the skin of guinea-pigs in which the virus of typhus fever is propagated, when mildly irritated in advance of the febrile reaction, shows a characteristic exanthem during the height of the experimental disease. More drastic methods of irritation, however, cause a dermatitis which obscures the rash but produce in the corium more marked specific histopathologic changes.

Blood Reaction in Experimental Pneumonia.—According to Leake, Vickers and Brown, the correlation of the lung lesions and anemia in dogs suffering from experimental pneumonia induced by various organisms, with changes in the respiratory activity and in the acid-base relationship in the blood, indicates that the developing acidosis, most marked in the severe cases, is due chiefly to an anoxic anoxemia.

Causes of Gallstone Formation.—Drury, McMaster and Rous assert that carbonate spheroliths not infrequently serve in human beings as centers in the formation of secondary stones of carbonate and cholesterol, and, further, that cholesterol precipitation out of human bladder bile can be induced or prevented by slightly altering the reaction of the fluid toward the alkaline and acid sides, respectively.

Liver Changes in the Fasting Animal.—The tentative conclusion is reached by Rous and McMaster that the liver changes in the fasting animal are essentially conditioned on functional demands made on the liver. A comparison of the liver weight with that of the soft body brings out the fact that the liver is, relatively speaking, three fourths as large at extreme inanition as in the well nourished subject. Of the missing fourth a part may be foodstuffs on temporary deposit. And the rest is, perhaps, to be accounted for by the existence of special conditions during inanition which favor the vicarious assumption of a part of the usual liver work by other tissues.

Influence of Suprarenals on Resistance.—Scott's experiments indicated that the resistance of rats to bacterial intoxication is greatly decreased after double suprarenalectomy. This decreased resistance is dependent on a functional insufficiency of the suprarenal cortex. A dose of killed streptococci or staphylococci can be obtained that is invariably fatal to suprarenalectomized rats, before the hypertrophy of the cortical accessories has occurred, but which never kills control rats.

The Spleen and Small Lymphocytes.—In a series of animals in which the thoracic duct had been tied, Lee found that the relative increase in the number of small lymphocytes in the circulating blood following the intraperitoneal administration of pilocarpin nitrate was the same as for control animals. While support is brought for Harvey's view that pilocarpin causes a lymphocytosis through the contraction of plain muscle, evidence is presented which indicates that the spleen is no more specialized in the production of small lymphocytes than any other portion of the lymphopoietic system.

Tendency to Develop Tumors Is Hereditary.—Lynch presents results obtained from crossing mice from "tumor strains" with males from other sources. The comparison of the tumor incidence in the inbred and backcross daughters, though the numbers given are small, supports the theory that the tendency to develop neoplasms is hereditary and the frequency with which tumors appear in the first filial generation of such crosses, indicates that the character is dominant.

Kansas Medical Society Journal, Topeka

24: 63-94 (March) 1924

Intra-Abdominal Examination by Aid of Peritoneoscope. W. E. Stone, Florence.—p. 63.
Woman-Child Problem from Economic Standpoint. F. A. Harper, Pittsburg.—p. 66.
Relation of Doctor to Druggist. W. S. Hudsburg, Independence.—p. 69.
Druggists and Doctors. I. G. Fowler.—p. 70.
Thrombosis of Retinal Vein. E. J. Curran, Oxford.—p. 77.
Recurrent Early Syphilis. C. C. Dennie, Rosedale.—p. 78.

Laryngoscope, St. Louis

34: 167-242 (March) 1924

Relation of Maxillary Sinus to Ocular Diseases. J. I. Dowling, Albany, N. Y.—p. 167.
Nasal Accessory Sinus Infection and Orbital Disease. C. G. Crane, Brooklyn.—p. 174.
Puncture of Maxillary Sinus. S. L. Ruskin, New York.—p. 179.
Epistaxis Leading to Diagnosis of Scurvy. A. Lobell, New York.—p. 184.
Treatment of Syphilis from Standpoint of Otology and Laryngology. J. A. Babbitt, Philadelphia.—p. 193.
Submucous Resection of Inferior Turbinate Bone in Nasal Obstruction. W. Spielberg, New York.—p. 197.
Nasal Obstruction as Factor in Hay-Fever. M. H. Kaiden, New York.—p. 204.
Operation for Chronic Suppurative Otitis Media. H. G. Blackwell, New York.—p. 210.
Intrinsic Cancer of Larynx. H. Smith, New York.—p. 214.
Indications for Radical Mastoid Operation. J. M. Smith, New York.—p. 224.
Improving Guillotine Tonsil Operation. T. E. Walker, Cleveland.—p. 231.
Modification of Ballenger Swival Knife and Anterior Mucous Membrane Separator. A. J. Shekter, Jamaica, L. I.

Maine Medical Association Journal, Portland

14: 165-182 (March) 1924

Traumatic Cerebrospinal Lesions. N. A. Fogg, Rockland.—p. 170.

Michigan State Medical Society Journal, Grand Rapids

23: 91-138 (March) 1924

Local Anesthesia. H. S. Collisi, Grand Rapids.—p. 91.
*Sarcoma of Mediastinum. J. R. Jeffrey, Battle Creek.—p. 95.
Precancerous Cervix. N. Ginsburg, Detroit.—p. 98.
Mastoid Case with Complications. C. F. Snapp, Grand Rapids.—p. 99.
European Impressions. W. J. Stapleton, Detroit.—p. 100.
Dystocia Resulting from Pathology of Soft Parts of Generative Tract. W. Manton, Detroit.—p. 103.
Pathologic Action of Uterus Cause of Dystocia. T. W. Adams, Ann Arbor.—p. 108.
Deep Roentgen-Ray Therapy in Malignancies of Cervix and Uterus. C. K. Hasley, Ann Arbor.—p. 113.
Pyogenic Granuloma of Ethmoid Ulcerating into Orbit. H. Grant, Detroit.—p. 116.
*Enlarged Thymus. J. P. Parsons, Ann Arbor.—p. 117.
Psychoneuroses. T. J. Heldt, Detroit.—p. 121.

Sarcoma of Mediastinum.—Jeffrey reports three cases in which deep roentgen-ray therapy failed to yield results. It has seemed to temporarily check the growth in some reported cases, while in others it has apparently stimulated it and possibly intensified certain symptoms.

Enlarged Thymus.—According to Parson's observations, a roentgenogram is not always conclusive in ruling out an enlarged thymus. An unusually large thymus may show very mild local thymus symptoms from the start. The symptoms may never attract attention until after the baby has had several colds. These babies seem to be more subject to colds or infections. Repeated infections in a patient who may have only a moderately enlarged thymus and in whom no history of thymic symptoms is obtained, may prove disastrous.

Military Surgeon, Washington, D. C.

54: 257-384 (March) 1924

Panamerican Sanitary Bureau and International Sanitary Convention of Panamerican Republics. R. J. Lloyd.—p. 257.
Treatment of Wounds in German Army During World War. Franz.—p. 272.
Principles of Evacuation. II. Division Evacuation. T. L. Rhoads.—p. 284.
"Tropical Neurasthenia"; Deprivation Psychoneurosis. J. C. Thompson.—p. 319.
Comparison of Three Types of Anoxemia. E. C. Schneider.—p. 328.
Company Commander and Health of His Men. H. V. Würdemann.—p. 340.

Minnesota Medicine, St. Paul

7: 135-226 (March) 1924

Cutaneous Tuberculosis and Tuberculids in Diagnosis. J. H. Stokes, Rochester.—p. 135.
Tuberculous Disease of Bones and Joints. C. C. Chatterton, St. Paul.—p. 144.
Tuberculosis of Genito-Urinary Tract. H. C. Bumpus, Rochester.—p. 146.
*Gastro-Intestinal Manifestations of Tuberculosis. W. J. Marcley, Minneapolis.—p. 151.
Heliotherapy in Treatment of Tuberculosis. J. H. Bendes, Oak Terrace.—p. 154.
*Treatment of Disease of Biliary Tract. E. S. Judd, Rochester.—p. 161.
*Hypertension in Pregnancy. F. L. Adair, Minneapolis.—p. 170.
Metastasis in Breast Cancer. W. A. Coventry, Duluth.—p. 182.
*Diagnosis of Acute Appendicitis in Children. H. F. Helmholz, Rochester.—p. 187.
Neurologic Disorders Associated with Pain. H. W. Woltman, Rochester.—p. 193.

Tuberculosis of Appendix.—Marcley thinks that a careful examination of all appendices removed by operation would reveal tuberculosis in at least 1 per cent. of all cases.

Prognosis in Biliary Tract Surgery.—Judd emphasizes the fact that the results of operations for inflammatory conditions in the biliary tract are, as a rule, gratifying. The gallbladder may be removed, stones taken from the common duct and the biliary tract drained, and the patient return to a normal state

of health in a short time with slight prospect of ever having further trouble.

High Blood Pressure in Pregnancy.—In Adair's opinion, the routine taking of blood pressure readings is important in detecting and diagnosing pathologic conditions, especially eclamptic toxemia, during pregnancy. An increase of blood pressure during pregnancy practically always means the existence and progression of some pathologic condition.

Acute Abdominal Disease in Children.—Helmholz regards every acute abdominal condition in childhood as appendicitis until it has been proved otherwise. Acute appendicitis in infancy and childhood owes its peculiarity to the insidious onset and its tendency to rapid perforation. Early diagnosis, therefore, is essential to a reduction of mortality. Helmholz says the indiscriminate giving of cathartics to children with abdominal symptoms is unwarranted and often dangerous.

Nebraska State Medical Journal, Norfolk

9: 77-116 (March) 1924

Clinical Surgery. J. E. Summers, Omaha.—p. 77.
Megacolon. C. J. Drueck, Chicago.—p. 82.
Insulin in Diabetes. F. Conlin, Omaha.—p. 89.
Empyema Complicating Pneumonia. J. D. McCarthy, Elkin.—p. 95.
Surgical Diseases of Right Kidney. W. J. Arrasmith, Grand Island.—p. 99.
Osteomyelitis of Ilium. F. G. Kolouch, Schyler.—p. 104.
Melting Pot. A. Sweeney, St. Paul, Minn.—p. 107.

New Jersey Medical Society Journal, Orange

21: 75-114 (March) 1924

Treatment of Sinusitis. E. R. Faulkner, New York.—p. 75.
Recognition of Early Pulmonary Tuberculosis. G. H. Lathrope, Morristown.—p. 77.
Indications for Use of Digitalis and Quinidin. H. E. S. Pardee, New York.—p. 84.
Place of Sanatorium in Tuberculosis Campaign. M. I. Marshak, Bayonne.—p. 88.
Cancer Pathology. J. W. Gray, Newark.—p. 89.
Cancer of Thyroid. J. F. Hagerty, Newark.—p. 91.
Carcinoma of Bile Passages. J. F. Wolfe, Newark.—p. 93.
Gangrenous Diverticulitis of Cecum. H. G. MacDonald and D. A. Curtis, Hackensack.—p. 94.

New York State Journal of Medicine, New York

24: 433-482 (March 28) 1924

*Infant Mortality in Relation to Breast Feeding. F. L. McKay, Albany.—p. 433.
Preventive Dentistry. A. C. Fones, Bridgeport, Conn.—p. 439.
Incidence of Paranasal Sinus Disease in Children. E. J. Avery, Rochester.—p. 445.
History of Medicine. J. Van Duyn, Syracuse.—p. 448.

Infant Mortality in Relation to Breast Feeding.—The superiority of breast feeding over artificial feeding as a means of reducing infant mortality is stressed by McKay in a review of various surveys here and abroad. There is ample proof that the mortality rate among artificially fed babies is from three to five times as high as among the breast fed. There is evidence of a decided decrease in morbidity among the breast fed. The longer the period of breast feeding the lower the infant mortality, and the longer the period of artificial feeding the higher the infant mortality rate. Mortality rates are higher for all causes of death among the artificially fed than among the breast fed and much higher for gastro-enteritis and respiratory diseases.

Northwest Medicine, Seattle

23: 103-152 (March) 1924

Cardiac Neuroses. F. W. Peabody, Boston.—p. 103.
*Estimating Heart Muscle. P. V. von Phul, Seattle, Wash.—p. 109.
*Administration of Digitalis by Rectum. F. A. Willius, Rochester, Minn.—p. 114.
Tincture of Digitalis in Auricular Fibrillation. C. H. Hofrichter, Seattle, Wash.—p. 115.
Medical Management of Goiter. H. Wheelon, Seattle, Wash.—p. 117.
Malignancy of Thyroid. J. B. McNerthney, Tacoma, Wash.—p. 121.
Roentgen Ray Findings in Congenital Obstruction of Median Basilic Vein and Deep Axillary Lymph Channels. F. E. Diemer and F. E. Butler, Portland, Ore.—p. 125.
Ethylene. J. S. Lundy, Seattle, Wash.—p. 126.
Gas Gangrene (Bacillus Aerogenes Capsulatus) in British Columbia. A. S. Monro, Vancouver, B. C.—p. 131.
*Cesarean Section. R. J. O'Shea, Seattle, Wash.—p. 135.

Estimating Heart Muscle.—Cardiac fluoroscopy is endorsed by von Phul as a means of ascertaining the character of the myocardium. The broadening of the heart shadow on deep expiration gives high ratio percentages in the flabby muscled heart, and low percentages in those of firm muscular walls. Information can be obtained only by this method, giving the correct interpretation of trouble in some hearts apparently normal.

Digitalis by Rectum.—The Minnesota grown digitalis leaf purpurea, from which a tincture is prepared and carefully standardized by the Hatcher cat unit method is used by Willius. The tincture is added to a physiologic solution of sodium chlorid and slowly instilled into the rectum after a cleansing enema. The dose varies in individual cases, but one of two definite methods was used. In most instances one rectal instillation of 6 c.c. of the tincture of digitalis in 100 c.c. of salt solution was given and repeated daily, until the desired degree of digitalization was obtained. In a smaller group of cases three daily rectal instillations of from 2 to 2.5 c.c. of the tincture in 60 c.c. of salt solution were given. No untoward effects have been encountered, either from the drug or from rectal intolerance. By giving the large dose, a distinct effect of digitalis was evident within one or two days, while with smaller doses from three to five days were required to obtain the same results.

Cesarean Section Without Mortality.—O'Shea reports on thirty cases of cesarean section with no mortality of mother or child. He believes this result is due chiefly to the fact, that the diagnosis has been made definitely beforehand in the majority of cases and the line of treatment deliberately planned; and, to the absence of any previous examination by vagina or any other form of manipulation or operative treatment.

Oklahoma State Medical Association Journal, Muskogee

17: 57-83 (March) 1924

Pathogenic Pseudo-Gonococcus. R. Bolend, Oklahoma City.—p. 57.
Treatment of Inflammatory Conditions of Seminal Vesicles and Prostate Gland. F. J. Baum, McAlester.—p. 59.
Traumatic Abdomen. I. B. Oldham, Muskogee.—p. 60.
Influenza; Some Complications H. M. Williams, Oklahoma City.—p. 63.

Rhode Island Medical Journal, Providence

7: 33-48 (March) 1924

Acne Vulgaris. R. Blosser, Providence.—p. 33.
*Calcification and Bone Formation in Suprarenals. A. R. Newsam, Providence.—p. 35.

Calcification of Medulla of Suprarenals.—In Newsam's case a sudden attack of unconsciousness was followed within three hours by clonic convulsions involving the whole body, the right side of the face, the left arm and left leg being most involved. The patient, a girl, aged 2 years 7 months, became incontinent and vomited; between convulsions she remained comatose. At times during convulsions cyanosis was extreme and the patient frothed at the mouth. Following a severe convulsion her abdomen rapidly distended. The rectal tube did not give relief. In spite of oxygen, cardiac stimulation and sedatives her convulsions continued and she died about fourteen hours after onset. The essential necropsy findings were in the suprarenals. Very little cortex remained and the whole of the medulla was replaced by calcified material. There was some edema and congestion of the brain and lungs. The thymus gland weighed 20 gm. and Peyer's patches and the mesenteric lymph nodes were abnormally prominent. The absence of pigmentation of the skin suggests that pigmentation in Addison's disease must be due to something more than the simple destruction of the suprarenals.

Southern Medical Journal, Birmingham, Ala.

17: 145-232 (March) 1924

*Mild Forms of Diabetes, Especially in Elderly Persons with Arteriosclerosis. R. T. Woodyat, Chicago.—p. 145.
Insulin in Severe Cases of Diabetes Mellitus. J. E. Paullin, Atlanta, Ga.—p. 153.
*Use of Insulin by General Practitioner. S. Harris, Birmingham.—p. 159.
*Sickle Cell Anemia. V. P. Sydenstricker, Augusta, Ga.—p. 177.
Effect of Irradiation on Malignancy and Patient. S. S. Marchbanks and T. C. Crowell, Chattanooga.—p. 183.
*Twins with Hypertrophic Pyloric Stenosis. H. L. Moore, Dallas, Tex.—p. 187.

Child Hygiene and Sheppard-Towner Fund. E. M. Watters, Washington, D. C.—p. 189.
*Tumors of Carotid Body. H. A. Royster, Raleigh, N. C.—p. 196.
*Radiation in Female Breast Before and After Operation. W. E. Sistrunk, Rochester, Minn.—p. 201.
*Radiation in Treatment of Carcinoma of Breast. G. E. Pfahler, Philadelphia.—p. 203.
Treatment of Eclampsia and Nephritis, Complicating Pregnancy. G. Baughman, Richmond, Va.—p. 208.
Sixth Nerve Paralysis in Acute Otitis Media. H. Dupuy, New Orleans.—p. 213.
Etiology of Glaucoma; Sclero-Post-Iridectomy. J. W. Jervey, Greenville, S. C.—p. 218.

Curves of Secretion in Diabetes.—One of the cases reported by Woodyat illustrates a method of study in some respects new. The patient was kept on a succession of diets for three or more days, during which time the twenty-four hour outputs of sugar were estimated by the Benedict-Osterberg or Folin-Berglund method. When the excretion became virtually constant for any one rate of supply of glucose, the average was taken as the excretion for that rate, and so on with each diet in succession. The results are plotted in the form curves, which are curves of secretion, but the difference between the excretion curve and the straight line supply curve gives a curve of utilization, and the rate of utilization can be studied as affected by the glucose supplies. The procedure described permits one to sustain a given supply rate long enough to reduce to a minimum errors that arise from periods of observation that are too short to allow the body to adjust itself to the conditions.

Sodium Bicarbonate in Diabetic Coma.—Referring to the use of sodium bicarbonate in diabetic coma, Harris says that a diabetic in coma, or threatened with coma may take from 1 to 2 ounces of sodium bicarbonate in twenty-four hours, the amount given depending on the weight of the patient. If the patient can swallow it, it may be given in teaspoonful doses in water every two or three hours. If the coma is profound, the sodium bicarbonate may be given intravenously, in 5 per cent. solution, either with or without the glucose.

Sickle Cell Anemia.—Forty cases form the basis of Sydenstricker's report. The condition is familial and hereditary, occurring indiscriminately as regards sex. It is characterized by the development in vitro of poikilocytes of an unmistakable form. Certain symptoms and physical signs are constant, namely, muscle and joint pains, abdominal crises, a peculiar scleral discoloration, general glandular enlargement, anemia and urobilinuria. All cases occurred in negroes or mulattoes. The youngest patient was 3 months old; the oldest, 67 years. Climate and geographical location have no significance. Necropsy findings indicate there is a primary perversion of function of the hemopoietic organs. There has been hyperplasia of the bone marrow in the three cases examined at necropsy with unusual morphologic changes in one case. There is increased blood destruction, as evidenced by the pigmentation of the tissues, the presence of bile pigments in the blood and the urobilinuria. The spleen in all cases has shown grave lesions and an extract of the spleen from one case showed extreme hemolytic activity. The hemorrhages and infarcts in the spleen may explain the recurrent attacks of high abdominal pain so frequent in this disease. What part phagocytosis plays in the production of the anemia is problematic. It is noteworthy, however, that the number of phagocytes in the peripheral blood is much increased during relapses.

Twins with Hypertrophic Pyloric Stenosis.—Moore asserts that these are the first cases of hypertrophic pyloric stenosis occurring in twins.

Tumor of Carotid Body.—Royster reports a case of perithelioma of the carotid body which surrounded the carotid artery. The tumor was removed. There has been no recurrence after three years.

Preoperative and Postoperation Radiation in Breast Cancer.—Sistrunk believes that no special good comes through using radium or roentgen ray just prior to operation. In advanced cases, it has not seemed to improve the end-results attained by surgery alone. He intends to treat a group of patients with radium as though no surgical treatment were to follow, and, after waiting for two or two and one-half months to obtain the complete effect of the radium and to permit the tissue changes which follow its use, to operate as though radium had not been used. He believes that, after the tissues have thus been prepared to resist cancer, the chance for recurrence may be diminished. After involvement of the glands, on account of the possibility of distant metastasis, it is doubtful whether the results will be improved. The results in four patients with advanced cancer of the breast recently treated in this manner bear out this belief.

Radiation and Surgery Combined in Breast Cancer.—Pfahler still is of the opinion that in cases of breast cancer the combination of surgery and radiation will probably double the good results obtained by surgery alone.

Texas State Journal of Medicine, Fort Worth

19: 591-654 (March) 1924

Nonsurgical Drainage of Gallbladder. M. L. Wilbanks, Greenville.—p. 597.
Tonicity of Common Bile Duct Sphincter. P. Riddle, Dallas.—p. 598.
Disease of Biliary Tract and Associated Viscera. J. E. Quay, Waco.—p. 601.
Sources of Error in Roentgenologic Diagnosis of Peptic Ulcer. R. T. Wilson, Temple.—p. 605.
Gridiron vs. Right Rectus Incision for Removal of Appendix. R. W. Knox, Houston.—p. 608.
Left-Sided Pain in Appendicitis. T. H. Thomason, Fort Worth.—p. 610.
Fascia Lata Transplant for Cure of Postoperative Hernia. P. H. Scardino, Houston.—p. 612.
Intestinal Tuberculosis. W. R. Smith, El Paso.—p. 615.
Giardia Intestinalis. D. N. Silverman, New Orleans.—p. 617.
Flagellates a Public Health Problem. J. H. Eastland, Mineral Wells.—p. 619.
Laxative Habit as Etiologic Factor in Chronic Invalidism. W. S. Horn, Fort Worth.—p. 622.
Epidermophyton and Tricophyton Infections of Skin. I. L. McGlasson and C. F. Lehman, San Antonio.—p. 626.
University Health Service in Relation to Medical Profession and Public Health. C. W. Goddard, Austin.—p. 632.
Criticism of Municipal Quarantine Regulations. J. H. Black, Dallas.—p. 635.
Mental Hygiene. F. E. Leslie, Sheridan, Wyo.—p. 638.

U. S. Naval Medical Bulletin, Washington, D. C.

20: 285-422 (March) 1924

Aviation Accidents and Methods of Prevention. J. F. Neuberger.—p. 285.

Virginia Medical Monthly, Richmond

50: 805-870 (March) 1924

Hemorrhoids Under Regional Anesthesia. S. H. Graves, Norfolk.—p. 805.
Ureteral Calculi. J. H. Neff, University.—p. 808.
Papillary Adenocystoma of Pancreas. G. T. Vaughan, Washington, D. C.—p. 811.
Gateway of Digestion. M. O. Burke, Richmond.—p. 812.
The Chronic Patient. R. L. Raiford, Sedley.—p. 813.
Chorio-Angioma: Case. R. M. Page, Richmond.—p. 821.
Ethylene-Oxygen Anesthesia. J. S. Horsley, Jr., Richmond.—p. 822.
Inspiration of Medicine. J. T. Buxton, Newport News.—p. 828.
Surgical Management of Gallbladder Disease. A. E. Billings, Philadelphia.—p. 831.
Cancer of Mouth. R. L. Payne, Norfolk.—p. 834.
Value of Vital Records. L. Eliot, Washington, D. C.—p. 837.
Case of Bacteremia (?). A. H. Moore, New Market.—p. 839.
Closed Method of Treating Empyema vs. Rib Resection. G. C. Cooke, Winston-Salem, N. C.—p. 840.
Use and Abuse of Tobacco. J. C. McGuire, Washington, D. C.—p. 845.
Pelvic Stone with Complete Renal Destruction. W. T. Gay, Suffolk.—p. 851.
Case of Hernia of Meckel's Diverticulum Through Greater Sciatic Foramen. J. W. Brodnax, Richmond.—p. 853.

West Virginia Medical Journal, Huntington

19: 113-168 (March) 1924

Macedonian Call. J. C. Irons, Dartmoor.—p. 113.
Hematuria. T. J. McBee, Morgantown.—p. 115.
Urologic Diagnosis from Standpoint of General Practitioner. L. T. Price, Richmond, Va.—p. 120.
Preoperative and Postoperative Care of Patients Undergoing Prostatectomy. E. L. Merritt, Fall River, Mass.—p. 124.
Present Status of Benzyl Therapy. P. Seydel, Nitro.—p. 126.
Treatment of Diabetes Mellitus. W. H. Deer, Huntington.—p. 131.

Wisconsin Medical Journal, Milwaukee

23: 453-504 (March) 1924

Disease of Biliary Apparatus. W. J. Mayo, Rochester, Minn.—p. 453.
Differentiation Between the Quick and the Dead. G. W. Crile, Cleveland.—p. 457.
Oxygen Therapy in Lobar Pneumonia. S. I. Morris, Madison.—p. 461.
Radium in Tumors of Uterus. T. E. Jones, Cleveland.—p. 466.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 455-506 (March 15) 1924

*Acute Obstructive Cholecystitis. J. Morley.—p. 455.
*Clinical Use of Insulin. A. P. Thomson.—p. 457.
*Production of Formaldehyd by Intestinal Bacteria. B. H. Shaw.—p. 461.
*Treatment of Colds in Tuberculous Subjects. F. E. Gunter.—p. 463.
Case of Chickenpox Simulating Smallpox. W. M. Wanklyn.—p. 464.
Fracture of Odontoid Process and Partial Dislocation of Atlas Without Compression of Cord. G. Nicholson.—p. 465.
Recurrent Laryngeal Paralysis. W. G. Howarth.—p. 465.
Right-Sided Pharyngeal Diverticulum. J. B. Horgan.—p. 466.
*Severe Illness from Gnat Bite. H. M. Roberts.—p. 466.
*Fatal Case of Camphor Poisoning. T. L. Clark.—p. 467.
*Case of Ectopy of Testis. B. Moynihan.—p. 467.
Extreme Hyperthyroidism with Complete Recovery. E. N. Nason.—p. 467.

Acute Obstructive Cholecystitis.—To determine the relative frequency of obstructive cholecystitis, as compared with other manifestations of gallstones, Morley analyzed 100 consecutive cases of gallstones in which he operated. They are grouped as follows: Stones in gallbladder alone without obstruction, 42 cases; stones in common and hepatic duct (and usually in gallbladder), 20 cases; impacted stones in gallbladder with obstructive cholecystitis, 38 cases. Clinically the 38 cases fall into certain groups according to the extent and severity of the inflammatory process: (1) Acute nonperforative obstructive cholecystitis, 18 cases; (2) acute cholecystitis with gangrene, perforation and localized subphrenic abscess, 2 cases; (3) acute cholecystitis with gangrene, perforation and diffuse peritonitis, 2 cases; (4) recurrent cases, with operation in intervals of attacks, 16 cases. In the acute nonperforating group, 7 showed patches of gangrene involving the whole thickness of the wall, usually at the fundus. Many others showed extensive sloughs in the mucosa, or in the thickness of the wall, but without extending through to the serosa. Others, again, showed merely deep purple congestion of the mucosa, with distension by mucopus and infiltration of the walls. In the recurrent group an acute attack had usually subsided some weeks before, leaving a chronically distended gallbladder, in some cases containing pus, in others mucus, with marked scarring of the mucosa and fibrous thickening of the wall. Morley says that the type of patient who develops obstructive cholecystitis is usually over 50, and decidedly stout.

Clinical Use of Insulin.—After reviewing the diets of patients treated in preinsulin days, Thomson finds that he can support Woodyatt's contention, but makes this condition to it, that in about 25 per cent. of patients it is possible to use a diet with a fatty acid-glucose ratio of approximately 2:1 without causing acetonuria or any other symptoms of acidosis. This means that in certain cases it is possible to give a higher caloric value than the Woodyatt formula would allow. The patients Thomson considered for this purpose were all sugar-free and had normal blood sugars. He gives three basal diets that he uses and outlines a method of treating moderately severe diabetes which can be used in general practice.

Production of Formaldehyd by Intestinal Bacteria.—The production of formaldehyd by various intestinal bacteria was investigated by Shaw. The amount manufactured by the various organisms appeared to vary from about 0.0001 to 0.0015 per cent. As an aid to the classification and identification of bacteria, this reaction, in Shaw's opinion, should be of value. In the very large coliform and proteus groups, this reaction is most useful in the identification of bacteria, as it gives information hitherto unknown. It is evident that the amount of formaldehyd present in the alimentary canal will entirely depend on the types of coliform organisms in it. There are various ways in which formaldehyd arising from bacterial action may interfere with cellular respiration which, arguing from the constantly observed association of confusional mental states with profound destruction of erythrocytes in cases of malignant malaria, and certain other facts bearing on states of acidosis, is of the utmost importance to the maintenance of mental health. As far as treatment is concerned, obviously an attempt to replace the offending organisms by an innocuous type is desirable. A practical method of dealing with the condition would appear to be the regular administration of liquid petrolatum combined with occasional doses of salts, and treatment directed to restoring general tone to the system.

Treatment of Colds in Tuberculous Subjects.—Gunter's experimental results were so disappointing that he urges that vaccines for colds be used with caution in the tuberculous if there be a tendency to sensitiveness to tuberculin. The initial dose should be smaller than that usually given and rapid increment of dose should be avoided.

Severe Illness from Gnat Bite.—Roberts relates the case of a lady who was stung behind the ear by a gnat. In a day or two the swelling which resulted required medical attention. Before this swelling from the bite had disappeared she became prostrated, feverish, and had an eruption of herpes fascialis on the bitten side. While recovering from this she developed facial paralysis, which progressed into auditory nerve deafness. The deafness was of high grade and accompanied by a modified Ménière's syndrome.

Fatal Case of Camphor Poisoning.—In Clark's case a 16 months old child was given a teaspoonful of camphorated oil by mistake. The oil contained 12 grains of camphor. A few minutes after the oil had been taken the child became convulsed. The convulsions continued at short intervals, and a petechial eruption became profuse all over the whole body. The child never regained consciousness and died in seven hours. At necropsy, the mucous membrane of the esophagus was normal; the stomach and intestines showed a few petechial hemorrhages under the peritoneal coat and there were a few similar hemorrhages under the mucous membrane. A distinct smell of camphor was noticed, but no evidence of corrosion or of acute irritation was found. The capsule of the kidneys stripped easily. There were numerous small hemorrhages in the cortex, just under the capsule, of both kidneys. The other systems were normal.

Ectopia Pubopenilis.—Moynihan reports a case of "ectopia pubopenilis," one of the rarest forms of malposition. The left testis lay on the dorsum of the penis about 1½ inches below the pubes. The right testis had fully descended. The left half of the scrotum was imperfectly developed; but there was no difficulty in stretching it sufficiently to contain the testis when released.

Japan Medical World, Tokyo

4: 23-51 (Feb. 15) 1924

Identity of Beri-Beri with Polished Rice Disease. T. Ogata and others.—p. 23.
Pathology of Elephantoid Skin Disease of Filarial Dog. M. Kitagawa.—p. 27.
Classification of Pathogenic and Nonpathogenic Staphylococcus by Sugar Splitting Actions. S. Yoshioka.—p. 32.

Lancet, London

1: 581-632 (March 22) 1924

*Pulmonary Tuberculosis. III. Methods of Securing Local Rest for Lung. R. A. Young.—p. 581.
*Analysis of 671 Cases of Cancer in Egypt. R. V. Dolbey and A. W. Moore.—p. 587.
*Unexplained Diazo Reaction in Uremic Serums. C. H. Andrewes.—p. 590.
Excision of Rectum. V. Bonney.—p. 592.
Animal Tumor Cells Made Resistant to Roentgen Rays by Roentgen Rays. S. Russ.—p. 592.
*Metabolism of Cod Liver Oil by Diabetics. V. H. Mottram.—p. 593.
Varieties of Calabar Swellings. G. C. Low.—p. 594.
*Vertigo. R. Lake.—p. 595.

Surgery in Treatment of Pulmonary Tuberculosis.—In surgery of the stomach, duodenum, gallbladder, appendix and intestine, the most dramatic results are obtained in cases in which medicine has failed. Young believes that the surgery of pulmonary tuberculosis promises to give like results. It should be recognized clearly that surgery in this disease is not, and cannot be, a substitute for medical measures, but it may be a valuable adjunct. This branch of surgery, perhaps more than any other, demands an understanding between the physician and surgeon and a knowledge on the part of the surgeon of the medical problems involved, to a greater extent than any other.

Incidence and Varieties of Cancer in Egypt.—The analysis made by Dolbey and Mooro of 671 cases of cancer in Egypt shows that epithelioma of the scalp (thirty cases) is definitely more common than in England or America. Rodent ulcer (forty-one cases) is a common condition in Egypt. Cancer of the lip is not common (thirty-one cases). Cancer of the tongue is not common (twenty-five cases), and is characterized by special features. It has a slow development; it is not associated with evidences of syphilis; glandular involvement is very late, indeed, even in the submaxillary region, and death from secondary hemorrhage from the lingual or carotid vessels is comparatively unknown. Cancer of the breast (seventy-five cases) presents no unusual features in incidence, type or development from that observed elsewhere. Cancer of the cervix (nineteen cases) and of the body (six cases) of the uterus does not appear to be unusual in appearance or type. It is in the digestive tract that the incidence of cancer is most remarkable. There is practically no cancer of the stomach in Egypt, only eight cases in three years; and, as there is also very little gastric ulcer, six cases in the same period, there appears to be a definite causal relationship in a negative way between the two conditions. Secondary cancer of the liver is rare (four cases); but primary cancer originating in the gallbladder and the gallbladder fissure of the liver is more common (ten cases). As the incidence of gallstones in Egypt, six cases in this period of three years, is negligible, in spite of the fact that typhoid fever is endemic, there does not appear to be any connection between gallstones and the development of carcinoma of the gallbladder. In the large intestine, cancer is very rare in spite of the universal parasitic infection of the colon, and, especially the prevalence of bilharzial growths and papillomata. Cancer of the rectum (seven cases) is comparatively rare, notwithstanding that it is the most common site for bilharzial papillomata and growths with the consequent irritation of the lateral-spined ova of this parasite. In the urinary bladder, however, the incidence of malignant disease, both carcinoma and sarcoma, as a sequel to the irritation of the terminal-spined bilharzia ova in the foul and alkaline bladders of cystitis is extremely common (fifty-one cases). Malignant conditions of the kidney, including hypernephroma, are extremely rare. The prostate, however, is a very common seat of cancer, but simple enlargement of that organ is much less frequent than in England or America. Cerebral tumor is comparatively very rare in Egypt (eleven cases). Malignant disease of the thyroid gland is not uncommon (fifteen cases).

Diazo Reaction in Uremic Serums.—Ehrlich's diazo reaction for bilirubin in the blood serum was used by Andrewes on 184 patients, mostly suffering from jaundice or some condition affecting the liver. The series included, however, "controls" suffering from other diseases; and it is with sixteen patients suffering from nephritis that this note deals. It was found in performing the indirect test (in alcoholic solution) on the serum of certain of these patients that an orange-buff color appeared. This gradually deepened over a period of twenty-four hours. At the end of this time it seemed possible that the color was due to azobilirubin "gone wrong"; so the solution was made alkaline in order to test for the green color which azobilirubin has in alkaline solution. A beautiful cherry-pink color appeared and after a few minutes faded away. Similar results were obtained in at least eight patients with uremia, and in no other patient. It was specifically looked for in at least twenty-two other patients suffering from various diseases. It occurred only in patients with severe uremia; all those giving it had at least 220 mg. of urea per hundred cubic centimeters in their blood. Their uremia was due to varying causes. A positive result was not necessarily associated with twitching or convulsions; in other words, it occurred in any of the clinical types of uremia.

Metabolism of Cod Liver Oil by Diabetics.—Mottram substituted cod liver oil for butter in the diet of diabetics when they were at the stage of receiving an egg and vegetable diet with 25 or 50 gm. of butter. There was no evidence that the fat of the cod liver oil was metabolized along other lines than those of butter.

Low Blood Pressure Causes Vertigo.—Lake has found that, contrary to supposition, a low and not a high blood pressure may cause vertigo. In one case, the vertiginous attacks were coincident with reduction of the blood pressure.

Medical Journal of Australia, Sydney

1: 177-200 (Feb. 23) 1924

*Hydatid Disease of Liver. K. D. Fairley.—p. 177.
Pubiotomy. D. P. O'Brien.—p. 186.
Case of Amyotonia Congenita. W. J. Close.—p. 188.
Case of Congenital Diaphragmatic Hernia. R. Southby.—p. 189.

SUPPLEMENT

Hydatids of Heart and Hydatid Emboli. A. V. M. Anderson and S. W. Patterson.—p. 41.
Insulin in General Practice. J. F. Wilkinson.—p. 44.
Insulin. F. G. Morgan.—p. 47.
Relation of Anaphylaxis to Hay-Fever and Asthma. L. A. I. Maxwell.—p. 49.
Circus Movement in Auricle in Auricular Flutter and Fibrillation. W. N. Horsfall.—p. 52.
Digitalis and Quinidin in Auricular Fibrillation. M. D. Silberberg.—p. 65.
Renal Insufficiency. S. Gillies.—p. 58.
Renal Efficiency Tests: Nonprotein Nitrogen. D. W. C. Jones.—p. 60.
Origins of Renal Inefficiency. T. B. Robertson.—p. 61.

Hydatid of Liver.—In 248 cases of hydatid disease of the liver reviewed by Fairly, cysts were present in the liver in 72.9 per cent. Primary or secondary multiple infestation occurred in at least 50 per cent. of the cases. Contrary to the usual teaching, pain was the most frequent initial symptom in adults. Digestive disturbances are the only other common symptoms of uncomplicated hepatic hydatid cysts. Tumor and hepatomegaly are the most frequently physical findings in this disease. Signs at the base of the lung may be due to a subdiaphragmatic lesion, hydatid disease of the liver, and amebic abscess. When at operation for suspecetd cholelithiasis or cholecystitis little is found in the biliary passages to account for the symptoms, the possible presence of hydatid disease of the liver should not be forgotten and the liver should be thoroughly explored. Complete removal of the cyst is the ideal treatment, but it is generally impossible. The best method usually is formalinization and closure of the cyst, which should be done in all cases unless definitely contraindicated. The immediate prognosis in uncomplicated hydatid disease of the liver is good, while in complicated cysts it is doubtful. The ultimate prognosis in all cases should be guarded.

Medical Journal of South Africa, Johannesburg

19: 201-231 (Feb.) 1924

Case of Intradural Extramedullary Tumor: Operation; Recovery. A. W. Sanders and J. M. Moll.—p. 202.
*Cancer Among Natives. C. L. Leipoldt.—p. 206.
Insulin in Diabetes Mellitus. O. K. Williamson.—p. 208.
Law and Doctor in South Africa. H. de Villiers.—p. 212.

Cancer Among African Natives.—Leipoldt is convinced that the incidence of cancer is lower among native aborigines than among Europeans. Among 100,000 white (European) children examined in the schools of the Transvaal and the Cape were six cases of cancer, three of which were gliomata. Among 2,580 native children examined in both provinces, two cases of cancer occurred, one a sarcoma of the kidney and the other a sarcoma of the fibula.

Bulletin de l'Académie de Médecine, Paris

91: 269-302 (March 4) 1924

*Twin Heredity Through Male. Menetrier and Bertrand-Fontaine.—p. 275.
*Dangers of Infant Asylums. M. Labbé.—p. 278.
*Contagiousness of Cancer. C. Fiessinger.—p. 284.
Comparison of Statistics on Child Mortality. F. Ledé.—p. 290.

Twin Heredity Transmitted by the Male.—Menetrier and Bertrand-Fontaine relate the history of a woman who had six pairs of twins within nine years—all boys—with her first husband. With her second husband she had nine single boys who died early. The first husband was tuberculous, and nine of his sons died from pulmonary affections. The three remaining were killed during the war. It seems plausible to assume that the father was responsible for the twin type of the pregnancies, while the male sex of all the twenty-one children might depend on the mother. In the comment that

followed, the causal relation between tuberculosis, syphilis and twin pregnancies was discussed by Bar.

Dangers of Infant Asylums.—Labbé believes that keeping infants in institutions is not necessarily fatal. He admits that the mortality in some of them is 40 per cent. or more, but this proves only that they are not managed wisely. The infant asylum at Porchefontaine has a mortality of only between 5 and 7 per cent. In the discussion, Marfan pointed out that this institution owes its results to the fact that it admits mothers, and they suckle other infants beside their own.

Contagiousness of Cancer.—Fiessinger reports that Mathieu has observed within fourteen years ten deaths from cancer in eight neighboring houses in a small village. He asked the academy to vote on a resolution to the effect that it is not certain whether cancer may not be contagious. The other speakers were unanimous in their opposition. Regaud suggested the possibility of exposure to the same overlooked predisposing factor, and emphasized the relative frequency of malignant disease. Letulle recalled his own numerous diagnostic blunders in cancer in the course of the forty years of his hospital experience. The mistakes were recognized only at necropsy. A country physician, as in the reported cases, has less means of diagnosis and none of confirmation. Menetrier remarked that he believes that the public should be taught rather not to believe in the contagiousness of cancer.

Bulletin Médical, Paris

38: 265-284 (March 8) 1924

Roentgen Diagnosis in Renal Pathology. P. Cottenot.—p. 271.
*Protein Therapy in Mental Disease. R. Marmier.—p. 275.

Protein Therapy in Mental Disease.—Marmier reports a case in which a girl, aged 7, after apparent recovery from a regularly treated diphtheria developed a state of periodic depression with rambling confused hints about killing herself. She expressed apparently causeless fear, and refused to answer questions. This condition disappeared spontaneously but returned at fortnightly intervals until parenteral milk protein therapy was instituted. Marked improvement followed the first injection. They were kept up for a week. None of the morbid mental symptoms has recurred since.

38: 287-314 (March 15) 1924

Present Status of Surgical Treatment of Exophthalmic Goiter. P. Brocq and R. Maduro.—p. 293.
*Recent Progress in Therapeutics. G. Lyon.—p. 296.

Recent Progress in Therapeutics.—Among the more interesting features of Lyon's general summary are serum therapy in typhoid fever; hemolyzed blood injections in furunculosis and slowly developing phlegmons; roentgen-ray therapy for enlarged prostate, and diathermy in treatment of peripheral facial paralysis. He cites, further, four cases in which hypertrophic pyloric stenosis in infants subsided spontaneously.

Bulletins de la Société Médicale des Hôpitaux, Paris

48: 281-312 (March 7) 1924

Incontinence of Urine in Children. J. Comby.—p. 282.
Suppurating Meningitis with Friedländer's Bacillus. G. Lion and Minvielle.—p. 286.
Case of Multiple Aneurysms. Dargein and Oudard.—p. 289.
Sclerosis of the Pulmonary Artery. F. C. Arrillaga.—p. 292.
Gallbladder Colic of Lumbar Form. Moser and Parturier.—p. 303.
Streptococcus Meningitis Following Varicella. Lenoble and Thiélemans.—p. 304.
Eruption Following Tuberculin Treatment. E. Rist and P. Jacob.—p. 307.

48: 313-351 (March 14) 1924

*Orchiepididymitis After Serotherapy. L. Guinon and Lamy.—p. 313.
Ureter Roentgenoscopy with Iodized Oil. Sicard and Forestier.—p. 316.
Serotherapy of Pulmonary Gangrene. M. Leconte and Yacoel.—p. 317.
Treatment of Pulmonary Gangrene. H. Dufour.—p. 322.
Blood Lesions in Meningeal Hemorrhages. P. E. Weil et al.—p. 324.
Action of Pancreas Extracts in Diabetic Animals. M. Paulesco.—p. 329.
Neurosyphilis and Diabetes Insipidus. L. Babonneix et al.—p. 333.
*Malignant Endocarditis. C. Laubry and J. Walser.—p. 336.
Diastolic Murmur with Aortic Insufficiency. A. Clerc and J. Surmont.—p. 341.
Dilatation of Bronchi in Children. P.-F. Armand-Delille.—p. 344.
Functional Aortic Insufficiency with Endocarditis. P. Ribierre and R. Prieur.—p. 346.
Amaurosis from Carbon Monoxid. Levy-Valensi et al.—p. 349.

Orchiepididymitis Following Antimeningococcus Serum Treatment.—Guinon and Lamy report the case of two brothers, aged 6 and 11, with cerebrospinal meningitis. The first received, daily, 80 c.c. of antiserum, a total of 690 c.c., while the second boy had 435 c.c. injected in the course of seven hours. Both developed a painful orchitis, plus epididymitis in the first child. It is impossible to ascribe these nondangerous yet painful phenomena to any other cause than the antiserum.

Malignant Endocarditis with Typhoid Symptoms.—Laubry and Walser discuss a peculiar case in which a man entered the hospital with fever and other general abdominal and splenic symptoms characteristic of typhoid fever. A few days later the typhoid signs were supplanted by symptoms from the meninges, with Kernig's sign. In this period, different heart murmurs were heard, unobserved previously. It signifies a warning against the belief that septic endocarditis may always be easily accessible to diagnosis since it can appear under the guise of other diseases.

Comptes Rendus de la Société de Biologie, Paris

90: 457-543 (Feb. 29) 1924. Partial Index

Atrophic Rhinitis and Diphtheric Anatoxin. Dujardin-Beaumetz and Malherbe.—p. 459.
Zona Antigen Neutral to Herpes Serum. Netter and Urbain.—p. 461.
*Suprarenal Hormone and the Intestines. Tournade et al.—p. 464.
Apnea and Splanchnic Excitation. Tournade and Chabrol.—p. 466.
Action of Insulin on the Pneumogastric. Garrelon and Santenoise.—p. 470.
Structure of the Film in Cultures of Tubercle Bacilli. F. Bezançon et al.—p. 475.
*Vaccination Against Pyocyaneus. Arloing and Dufourt.—p. 477.
Constancy of the Bacteriophage Property. F. d'Herelle.—p. 481.
*Vaccine Therapy of Puerperal Infection. Lévy-Solal et al.—p. 483.
Localization of Polonium. Lacassagne and Lattès.—p. 485 and p. 487.
Quantitative Determination of Urobilin. P. Descomps et al.—p. 490.
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Hemoclastic Shock and Leukopenia. Arloing and Spassitch.—p. 495.
Arterial Tension in Vaccinal Shock. A. Dumas.—p. 499.
*Streptodiphtheria. J. Gaté et al.—p. 500.
Experimental and Spontaneous Encephalitis. C. Kling et al.—p. 507.
Swedish Encephalitis Virus Isolated. C. Kling et al.—p. 511.
The Virus of Epidemic Encephalitis. C. Kling et al.—p. 514.
Rectal Administration of Insulin. T. Stenström.—p. 518.
Cholesterolemia and Azotemia in Dogs Deprived of Water. Garofeano and Derevici.—p. 524.
Suprarenal Lipoids in Tuberculosis. I. Gruber.—p. 525.
*Fixation Reaction in Tuberculosis. Hurmuzachi and Nicodim.—p. 527.
Triple Contrast Stain. I.-A. Scriban.—p. 531.
Insulin and Glycolysis. Nitzescu and C. Popescu-Inotesti.—p. 534.
Insulin and Protein Sugar in Diabetes. Idem.—p. 536.
*Insulin and Cholesterolemia. Nitzescu et al.—p. 538.
Subdural Inoculation of Thrush Fungi. Urechia and Zugravu.—p. 540.
*Racial Isohemagglutination. Manuila and Popoviciu.—p. 542.

Suprarenal Hormone and Intestinal Inhibition.—Tournade and his co-workers conclude from their experiments on dogs and cats that in a healthy animal intestinal inhibition is caused through excitation of the splanchnics by both a nervous and a suprarenal mechanism.

Vaccination Against Pyocyaneus Infection.—Arloing and Dufourt state that in their experiments on guinea-pigs, subcutaneous vaccination with a pyocyaneus culture proved superior to the so-called transcutaneous and simple cutaneous technics.

Direct Local Vaccine Treatment of Puerperal Infection with Streptococcus Filtrate.—Lévy-Solal, Simard and Leloup conclude from their cases that there is no danger in applying an extremely tight intra-uterine tampon saturated with a streptococcus bouillon filtrate. This method yielded not only admirable results in grave puerperal septicemia, but also when the filtrate was applied intravenously, in cases of localized septicemic peritonitis.

Streptodiphtheria.—Gaté, Papacostas and Billa point out that Loeffler's bacillus, exalted in its virulence in an environment containing products of streptococci, loses this enhanced virulence after being removed from the medium containing the streptococcic products.

Fixation Reaction in Tuberculosis.—Hurmuzachi and Nicodim report statistics of the behavior of the fixation reaction with Besredka's egg-antigen in seventy-four cases of various forms of tuberculosis. The reaction was positive in 50 per cent.

Insulin and Cholesterolemia.—Nitzescu, Popescu-Inotesti and Cadariu found that there exists a certain type of cholesterolemia following experimental pancreatectomy. Insulin,

they say, does not influence normal cholesterolemia, but does influence the grave diabetic type. It reduces, also, the typically excessive fat content of the blood.

Racial Blood Grouping.—Manuila and Popoviciu summarize the results of their investigation on the biochemical differentiation of races, examining 2,512 individuals. The different proportions of the A and B agglutinogenic substances seem to be characteristic of the various races. The biochemical index showing this ratio was found to be 2.2 in Roumanians and 1.6 in Hungarians.

90: 546-600 (March 7) 1924. Partial Index

Contrivance for Transfusion of Citrated Blood. R. Le Clerc and R. Benda.—p. 550.
*Spontaneous Immunization in Diphtheria. Lereboullet and Joannon.—p. 552.
Dosage of Urobilin. P. Descomps et al.—p. 554.
*The Mediopubic Reflex. G. Guillain et al.—p. 556.
Modern Negro's Jaw and the Pleistocene Maxilla. E.-G. Dehaut.—p. 558.
Atropin Leukocytosis and Hyposecretion. Loeper and Marchal.—p. 560.
*Surviving Epithelium. A.-H. Ebeling.—p. 562.
*Vaccination by Mouth Against Dysentery. A. Antonovsky.—p. 564.
Dimensions of Cataract Nuclei. Aubaret.—p. 565.
Typhoid Infection in Guinea-Pigs. J. Sédan and R. Herrmann.—p. 567.
Leukosarcoma with Leukemia. J. Sabrazès and Rouslacroix.—p. 569.
Liver Cells in a Sacrococcygeal Embryoma. F. Corsy.—p. 572.
Branchial Fistula in the Neck. Jacques and Aubriot.—p. 579.
Antipneumococcus Serum Therapy. G. Etienne et al.—p. 580.
Pneumogastric Action After Suprarenalectomy. M. Athias and J. Fontes.—p. 583.
Biologic Diagnosis of Rabies in the Guinea-Pig. L. Figueira.—p. 584.
Pathogenesis of Edemas. M. Landsberg.—p. 597.
Rapid Microscopic Diagnosis of Diphtheria. Sierakowski.—p. 599.

Spontaneous Immunization in Diphtheria.—Lereboullet and Joannon report their experience on spontaneous immunization against diphtheria among 113 children who had been under treatment for bone tuberculosis in the hospital for several months or years. The time spent in the common ward in the hospital seems to be the essential factor in the spontaneous change to negative of the previously positive Schick test.

Response of the Adductors to the Pubic Reflex.—The graphic curve of the adductor contraction in response to the pubic reflex stimulus belongs, according to Guillain and his co-workers, to the class of periosteal reflexes.

Surviving Epithelium.—Ebeling has succeeded in growing in a laboratory culture cells of surviving epithelium taken from an embryonal lens together with an adjacent iris flap. The proliferation was still pronounced even in the eighteenth month after the death of the embryo.

Vaccination by the Mouth Against Dysentery.—Antonovsky compares the morbidity rate of dysentery among 1,000 persons vaccinated by the mouth, that is, by ingestion of simple compressed tablets, and 1,768 not treated. The results are very encouraging, since the morbidity rate among the nonvaccinated remained 3.11 per cent., while among those treated it descended as low as 0.3 per cent.

Journal de Médecine, Lyon

5: 117-146 (March 5) 1924

*Puerperal Fever and Arsphenamin. Voron et al.—p. 117.
Reduction of Syphilis Mortality at Birth. Dujol and Laurent.—p. 125.
Nervous Forms of Slow Endocarditis. Paliard et al.—p. 131.

Puerperal Fever and Arsphenamin.—Voron and his co-workers emphasize the importance of distinguishing true puerperal fever from syphilitic hyperthermia occurring in the puerperium. In the latter case, vigorous arsphenamin treatment produces excellent results, as is proved in two cases reported.

Paris Médical

221-236 (March 8) 1924

*Paralysis After Serum Treatment. J. Lhermitte.—p. 221.
*Diathermy in Cancer. H. Bordier.—p. 227.
*Treatment of Adenitis. P. Carnot and Froment.—p. 233.
Inflammatory Affections of the Extremities. A. Schwartz.—p. 235.

Paralysis After Serum Treatment.—Lhermitte reports cases in which both sensitized and nonsensitized patients developed a peculiar amyotrophic paralysis of the brachial plexus after therapeutic injection of antitetanus serum. He adds that this does not mean to restrict the justifiable practice of injecting the antiserum, but it is indispensable to study the relation between this neurotropic toxic effect and the effectual doses of antitetanus serum.

Diathermy in Cancer.—Bordier describes the case of a radiologist who, after having often failed to protect his hands while operating the fluoroscope, developed on his left hand an extensively progressing ulceration which proved to involve both the epithelium and the deeper layers of the skin, with sarcomatous degeneration. A few weeks after the coagulation had been induced by diathermy, under general anesthesia, the patient's hand returned to almost entirely normal conditions, so that he could resume his work.

Treatment of Adenitis with Copper Salts.—Carnot and Froment urge the differentiation of malignant lymphogranulomatosis and adenitis originated through the external sexual organs, from adenitis of obscure origin, which they term inguinal "poradenia." No ameba, or tubercle bacillus, or Ducrey's bacillus or the bacillus of plague was discovered. In one suppurating case, which had obstinately resisted emetin, xylol and Lugol's solution, the adenitis yielded entirely to sixteen intravenous injections of ammoniated copper sulphate, in the daily dose of 0.04 gm.

Presse Médicale, Paris

32: 253-264 (March 22) 1924

*Action of Insulin. F. Widal et al.—p. 253.
*Autohemotherapy in Dermatology. E. Schulmann.—p. 254.
Dosage in Vaccine Therapy. Durupt.—p. 256.
Vaginal Amputation of Cervix Preliminary to Abdominal Hysterectomy. E. Duroux.—p. 258.
Present Low Status of Ichthyol in Therapeutics. L. Cheinisse.—p. 259.

Dissociated Action of Insulin on Glycosuria and Acetonuria.—Widal and his co-workers report several cases in which small doses of insulin (10 units twice a day) lowered the acetone content of the urine but failed to influence the sugar content. However, the glycosuria could be diminished also by doubling the dose of insulin.

Autohemotherapy in Dermatology.—Schulmann recommends autohemotherapy in Quincke's edema, prurigo and furunculosis. After drawing the blood into the syringe, Schulmann reinjects it without withdrawing the needle from the arm, merely drawing it out of the vein and pointing the tip subcutaneously in another direction. Among thirty-two patients, only ten proved refractory, and twenty-two showed a marked hypotension and leukopenia following the hemoclastic shock. He quotes the results of Nicolas, Gaté and Dupasquier. They found five types of response to this autohemotherapy: either prompt improvement after the first injection, with complete recovery by the sixth or eighth; slow progressive improvement, requiring up to twenty injections; or, the original dermatosis became more accentuated following the treatment. In this case, or, if there is absolutely no reaction, it is advisable to stop further attempts at autohemotherapy. Instances have been reported of syncopes or emotive disturbances in neuropaths after this treatment. But Schulmann says that nothing of the kind has ever occurred in his experience with it.

Progrès Médical, Paris

141-164 (March 8) 1924

Rebellious Gastric Ulcer. F. Ramond.—p. 141.
*Germinal Pathology. H. Vignes.—p. 142.
The Duodenal Tube. H. Mauban.—p. 146.
Acute Serofibrinous Pleurisy in Children. Lereboullet.—p. 153.

Germinal Pathology.—Vignes discusses the hereditary transmission of hemophilia and deafmutism in connection with the mendelian laws. He also treats of experiments on artificially modifying the germinal plasm. He mentions those gravid animals which, having been injected with an antiserum for the crystalline lens, gave birth to young with cataract, and the offspring retained this property to the sixth generation.

165-176 (March 15) 1924

*Raynaud's Disease and Erythromelalgia. Nobécourt.—p. 165.
Cut Flint in a Prehistoric Bone Revealed by the Roentgen Rays. A. Rouillon and M. Baudouin.—p. 170.

Raynaud's and Weir-Mitchell's Syndromes in Children.—Nobécourt discusses the symptomatology of these syndromes. Although both are disturbances of the peripheral sympathetic, the first signifies a vasoconstrictor angiospasm, while the

other is a vasomotor paralysis. The anesthetic and analgetic livid tint of the Raynaud syndrome is in striking contrast to the painful active hyperemia of the Weir-Mitchell. Etiologically, tuberculosis, syphilis, nervous and endocrine disturbances are considered as primordial factors. An attempt at antisyphilitic treatment may often be valuable. Otherwise, warm hydrotherapy and electric treatment are indicated in Raynaud's disease. On the other hand, erythromelalgia requires vasomotor excitation by cold water procedures. Opotherapy and—in the case of symmetric gangrene—surgical intervention may be needed in some instances.

Revue Franç. de Gynécologie et d'Obstét., Paris

19: 97-128 (Feb. 25) 1924

*Treatment of Fibromyomas. H. Violet.—p. 97.
Questionnaire on the Use of Pituitary Extracts in Obstetrics. L. Pouliot.—p. 112.

Surgery Versus Radiotherapy for Fibromyomas.—Violet explains that there are several contraindications to roentgenotherapy of fibromyomas. It should not be applied to a young woman desiring children, nor in a case of concomitant benign ovarian tumor offering chances of malignant transformation after a course of irradiation. Other contraindications are salpingitis, and hard or calcified tumors in the pelvis. In these cases surgical intervention is to be preferred.

Schweizerische medizinische Wochenschrift, Basel

54: 253-272 (March 13) 1924

*The Kielland Forceps. T. Wyder.—p. 253.
*Sedimentation Test in Psychiatry. A. Glaus.—p. 260.
*Laparoscopy. R. Zollikofer.—p. 264.
*Fat-Tissue Necrosis in the Abdomen. R. Schweizer.—p. 265.
Determination of the Hydrogen Ion Concentration. A. Eckmann.—p. 266.

The Kielland Forceps.—Wyder comments on the conflicting views on the Kielland forceps, and warns against discarding entirely the old models. Young practitioners with comparatively little experience would not be helped by it, as it requires specialist training. However, the new model should not be ignored in teaching obstetrics. His article is illustrated.

Sedimentation of Erythrocytes in Psychiatry. — Glaus records the data from the pertinent literature and from his own experience on the applicability of the sedimentation test in differentiating psychoses. There was a marked increase in the speed of sedimentation in senile dementia, neurosyphilis, general paralysis, catatonia and in the period immediately following an epileptic seizure. But, on the other hand, this reaction failed in constitutional psychopathies, neurasthenia, hysteria, manic-depressive psychoses and in paranoia.

Use of Laparoscopy.—Zollikofer draws attention to the increasing application of laparoscopy through an abdominal incision, made usually for the purpose of tapping ascites. It gives very plain information on the etiology of abdominal effusions, especially if they can be traced to the liver.

Fat Tissue Necrosis.—Schweizer reports a case in which fat tissue necrosis developed in the abdomen consecutive to spontaneous perforation of the gallbladder. The case ended fatally.

Archivos de Endocrinología y Nutricion, Madrid

1: 1-64 (Jan.) 1924

*Influenza and Hyperthyroidism. G. Marañón.—p. 1.
Vitamin and Endocrine Deficiency. E. Abderhalden.—p. 16.
Physiologic Action of Insulin. E. Carrasco Cadenas.—p. 22.

The Archivos de Endocrinología.—This newly founded monthly is issued by Marañón of Madrid, Pi y Suñer of Barcelona, Houssay of Buenos Aires, and Novoa Santos of Santiago, with Carrasco Cadenas of Madrid as editor in chief. The annual subscription is 20 pesetas for Spain and Latin America, but 25 pesetas elsewhere.

Influenza and Hyperthyroidism.—Marañón states that he has encountered eighteen cases in which pronounced hyperthyroidism developed in connection with an attack of influenza. This group forms 2.7 per cent. of his 657 cases of hyperthyroidism during the last five years. He has very rarely observed hyperthyroidism follow any other acute infectious disease, and in his 1,300 cases of excessive functioning of the thyroid he always was answered in the negative when inquiring as to acute febrile rheumatism in the past. In his postinfluenzal hyperthyroidism cases there were seldom any clinical indications of thyroiditis but in nearly every case the thyroid was chronically enlarged.

Archivos Latino-Amer. de Pediatría, Buenos Aires

18: 1-112 (Jan.) 1924

*Chromatic Audition. José Maria Estapé.—p. 1.
Acute Meningitis Syndromes. A. Casaubón.—p. 11. Cont'd.

Color Association with Sounds.—This graduation thesis is devoted to the mechanism of the physiologic psychology involved in the association of colors with words, letters and sounds.

Brazil-Medico, Rio de Janeiro

1: 47-58 (Jan. 26) 1924

Myocardiac Aortic Insufficiency. J. Barbosa.—p. 47.
*The Bacteriophage and Hydrogen Ions. J. da Costa Cruz.—p. 50.
Emergency Surgery and After Care. P. P. Paes de Carvalho.—p. 50.

Influence of Hydrogen Ion Concentration on Bacteriophage.—Da Costa Cruz states that the bacteriophage loses the lytic property in acid mediums, flocculation occurring instead.

1: 59-70 (Feb. 2) 1924

Microsporon Ramos n. sp. Parreiras Horta.—p. 59.
Reductase Test in Milk Hygiene. A. de Paula Rodrigues.—p. 60.
*Myocardiac Aortic Insufficiency. José Barbosa.—p. 63.

Myocardiac Aortic Insufficiency.—Barbosa describes in this third article on this subject six cases of this form of relative aortic insufficiency of myocardiac origin, including three from Anders' series and Bret's case. A minimal lesion of the aortic orifice, from extension of an inflammatory process in the aorta, allows the valve to be forced by the rise of pressure, stretching not only the elastic fibrous ring but also the muscular fibers surrounding the origin of the aorta. At necropsy, as there is no pressure from the blood wave, the muscular fibers do not seem to be stretched.

1: 83-94 (Feb. 16) 1924

Heterochromia and Cataract. G. de Andrade.—p. 83.
*Surgical Treatment of Pulmonary Tuberculosis. J. G. Sant'Anna.—p. 85.
Examination of the Eyes by Practitioner. E. Campos.—p. 87.

Surgery of Pulmonary Tuberculosis.—Sant' Anna regards as one of the greatest benefits from successful thoracoplasty that it puts an end to the broadcasting of tubercle bacilli. The patient is soon no longer dangerous to his environment and regains his earning capacity.

Semana Médica, Buenos Aires

1: 363-402 (Feb. 28) 1924

*The Ambard Constant. R. Spurr.—p. 363.
Primary Congestion of Lung and Pleurisy. Goyena.—p. 386.
Insulin and Functional Rest of the Pancreas. D. J. Rojo.—p. 392.
*Syphilitic Peritonitis. Mascheroni and Tourreilles.—p. 393.
Ileopelvic Volvulus. V. Pauchet.—p. 396.
The Salicylates in Rheumatism. G. Pansini.—p. 398.

The Ambard Coefficient in Diagnosis of Kidney Disease.—Spurr concludes from his exhaustive comparative study of various tests of kidney functioning that the Ambard coefficient seems to be the only means at our command for estimating the amount and quality of the still functioning parenchyma of the kidney. Interpretation of the constant requires consideration of the factors composing the formula, as well as the coefficient itself.

Peritonitis with Effusion of Syphilitic Origin.—The woman aged 43 evidently had sclerosis of the liver, but the ascites was a peritoneal reaction, not of mechanical origin. The peritonitis had long been ascribed to tuberculosis, and an operation performed, but the acute attack with profuse ascites returned three months later. Inoculation of animals proved negative while the Wassermann test was positive. Under treatment for syphilis the ascites subsided and the general condition improved. The treatment was neglected, and another mild attack followed, but it yielded promptly to resumption of treatment. In another case the peritonitis was evidently the work of inherited syphilis; tests of liver and kidney functioning showed normal conditions in the boy of 16. Even when there is tuberculosis, liver disease or hydatid cyst, syphilis may induce a complicating curable peritonitis.

Archiv für Kinderheilkunde, Stuttgart

74: 1-80 (March 8) 1924

*Influence of Arc Light on Rat Rickets. A. Eckstein.—p. 1.
Infant Feeding with Calory-Rich Food. E. Hoeckle.—p. 30.
*Wilson's Disease in Infancy. S. Paul.—p. 38.
*Tetanus of the New-Born. A. Bratusch-Marrain.—p. 45.
The Pituitary in Children and Its Pathology. T. Gött.—p. 55.

Arc Light and Rickets.—The experiments of Eckstein, made on forty-three rats, proved that those animals which had been treated by irradiation from an electric arc light failed to develop rachitis in spite of preliminary deprivation of vitamin A, phosphorus and fat content of their food. The nonirradiated control animals developed rachitic bone changes.

Wilson's Disease in Infancy.—Wilson described in 1913 a syndrome which he termed the extrapyramidal symptom-complex with concomitant liver cirrhosis and lenticular degeneration. Paul encountered recently for the first time an infant with tonic spasm, jaundice, normal color of feces, and much enlarged liver, but absolutely normal spleen. Banti's and Gaucher's disease and syphilis could be positively excluded. Since the pallidum symptoms harmonized well with the second type of Little's disease, the case might be diagnosed as Little's disease as well. Along with the typical pallidum symptoms, dorsal flexion of the foot, crossing of the legs, flexion in the knees, dropping position of the hands, increased surface tonicity of the muscles and nondecreasing muscle rigor during passive movements, there occurred one striatal symptom: namely, opisthotonos.

Tetanus in the New-Born.—Bratusch-Marrain calls attention to the fact that in the older portion of the city of Graz, tetanus infection is incomparably more frequent than in the modern, newly built districts. Realizing the great resistance of tetanus bacilli to all deleterious agents, the foregone statement is easily understandable. It is, theoretically, not quite clear why magnesium preparations are superior to other narcotics, but in his twenty-six cases they practically proved their superiority.

Archiv für klinische Chirurgie, Berlin

128: 655-824 (March 8) 1924

*Microscopy of the Blood in Surgery. O. Stahl.—p. 655.
*Surgical Complications After Fevers. E. Hesse.—p. 739.
Tendovaginitis with Crepitation. G. Hauck.—p. 815.
Inflammation Around Ascending Colon of Diverticulitis Origin. K. Doppler.—p. 819.

Microscopy of the Blood in Surgery.—Stahl concludes after his extensive investigations that the histologic examination of the blood is most essential in clearing up a dubious diagnosis of inflammatory processes. However, it should be applied as merely one element among the other clinically gathered data.

Surgical Complications of Typhus and Relapsing Fever.—In his survey of complications requiring surgical treatment after typhus, paratyphoid, and recurrent fever, Hesse warns against the danger of performing major operations too soon after even an apparently normal convalescence. Thus, in one posttyphus case, after having borne excellently a vertebral operation, the patient died from septicemia on the fiftieth day after the surgical intervention. The wound was for a long time aseptic but failed to exhibit the least sign of granulation.

Jahrbuch für Kinderheilkunde, Berlin

104: 257-320 (March) 1924

*Serodiagnosis and Congenital Syphilis. F. Szirmai.—p. 257.
Oleic Acid Hemolysis in Anemic Infants. K. Benjamin.—p. 277.
Eosinophilia in Scarlet Fever After Parenteral Protein Injections. E. Ringwald.—p. 287.
Relative Function of Flexor and Extensor Muscles in Infants. C. Ritter.—p. 293.
Lemon Juice in Avitaminosis. K. Asada.—p. 301.
Action of Tuberculosis Antiserum. C. Kraemer.—p. 304.

Importance of the Newer Serologic Tests from Standpoint of Congenital Syphilis.—Szirmai's extensive laboratory experiments have proved the Wassermann to be more sensitive than the flocculation test. However, both ought to be used for mutual comparison and confirmation. In the symptomless pregnant, Meinicke's turbidity reaction proved effectual in so far as it allowed discovery of latent syphilis and thus gave a chance for warding off congenital infection.

105: 1-382 (March 5) 1924. Dedicated to E. Feer.

Modern Pediatrics. O. Heubner.—p. 1.
*The Herpes Zoster-Varicella Question. J. v. Bókay.—p. 8.
*Fat Tissue and Fever. A. Czerny.—p. 24.
*Eczematoid of the Face. E. Moro.—p. 27.
Rickets and Congenital Myxedema. J. Bernheim-Karrer.—p. 31.
Nonexistence of Fellner's Papule Procutin. G. Bessau and O. Köhler.—p. 39.
Speed of Sedimentation of Erythrocytes. H. Brokman and H. Hirszfeld.—p. 55.
*Aggravation of Cancerous Glands by Irradiation. O. Cramer.—p. 68.
*Skin Streptococcus Test in Scarlet Fever. G. Fanconi.—p. 77.
Old and New Rickets Problems. E. Glanzmann and L. Sieffert.—p. 99.
Pathogenesis of Jaundice of the New-Born. W. Hoffmann.—p. 155.
Pernicious Anemia in Children. A. Hotz.—p. 161.
*Encephalography in Infants. W. Knoepfelmacher.—p. 181.
Intraperitoneal Transfusion of Blood. L. F. Meyer.—p. 188.
Remote Results of Cleft Palate Operations. E. Monnier.—p. 200.
Osteosclerosis in Children. G. Nadolny.—p. 212.
Endemic Goiter and Cretinism. M. Pfaundler.—p. 223.
Gaucher's Splenomegaly in Infants. M. Reber.—p. 277.
Testis Measurements in Children. H. Reich.—p. 290.
Congenital Hemolytic Jaundice. A. Resch.—p. 301.
*Alimentary Glycemic Reaction in Young Children. F. Rumpf.—p. 321.
Anterior Fontanel in the First Year of Life. P. Ryhiner.—p. 335.
*Insufficiency of the Circulation in Children. Schiff.—p. 341.
*Meningeal Reactions in Children. M. Stooss.—p. 345.
*Masked Varicella. E. Wieland.—p. 367.

The Herpes Zoster and Varicella Question.—Bókay, who established thirty-five years ago the clinical entity of varicellous herpes zoster, states that now investigators in various countries are confirming his original assumption of the kinship between zoster and varicella. The practical consequence should be that herpes zoster can no longer be considered a simple nervous affection, but as a contagion conveyor.

Fat Tissue and Fever.—Czerny comments on the interrelation between adiposity and fever. Although it is known that obese children attacked by an infectious disease are more prone to higher temperatures than the undernourished, the biologic mechanism of this is still a mystery.

Dry Eczema of the Face.—Moro recommends for the treatment of this form of dry eczema a neutral ointment or, in the case of marked scale formation, salicylated petrolatum. If the epidermis be thickened, a detergent coal-tar solution may prove beneficial.

Malignant Lymphadenitis and Roentgen Irradiation.—Cramer warns against indiscriminate irradiation of malignant lymphadenitis since the disturbance may be aggravated by the roentgen rays. A few fatal cases have been reported.

The "Antistreptoreaction" in Scarlet Fever.—Fanconi recommends the cutaneous streptococcus vaccine test as a simple and practical aid in confirming a dubious diagnosis of scarlet fever. If there is no reaction, this is believed to prove the presence of scarlatinal infection, since this condition reduces the normal resistance of the skin against streptococci. However, he says, the reaction is neither specific nor absolutely reliable, since it occurred positively in two unmistakable cases of scarlet fever in his experience.

Encephalography in Infants.—Knoepfelmacher emphasizes the diagnostic importance of encephalography, that is, locating and differentiating brain lesions by withdrawing 10 to 50 c.c. of cerebrospinal fluid from a ventricle and injecting air, previous to roentgenoscopy. He claims that this method can be applied without hesitation even in the new-born.

The Glycemic Reaction to Small Doses of Sugar in Infants and Young Children.—Rumpf recorded the sugar content curve of the blood in infants during fasting and after ingestion or subcutaneous injection of small amounts of sugar. The smallest amount of glucose which induced in infants distinct alimentary glycemia was 1.3 gm. per kilogram of weight; in small children, the smallest amount was 0.7 gm. and in adults, 0.3 gm. The younger the organism the better its power of assimilation for sugar. Given subcutaneously, the infant reacts to 0.3 gm. the same as to 1.3 gm. by the mouth. In children between 3 and 7, the blood sugar averaged 0.085 per cent. but the average was 0.091 between the ages of 10 and 14. The glycemia reaction seems to depend on the carbohydrate balance of the organism. After subcutaneous injection of the sugar, the glycemia reaction

depends on the duration of fasting and the state of nourishment. This is the preferable technic for study of the glycemia reaction.

Insufficiency of the Circulation in Children.—Schiff explains that in acute heart disease the symptoms are generally from injury of the vessels. Disturbances from failing compensation of a valvular defect are the result of the weakness of the heart. This distinction enables one to tell at a glance whether the heart disease is acute or chronic.

Meningeal Reactions in Children.—Stooss describes some instances of meningeal reactions in the course of acute infectious diseases, especially influenza, and summarizes the literature on the subject. In three other cases described, an apparently primary, acute serous meningitis developed in the midst of health. There seemed to be an epidemic of such cases in Paris in 1910. He emphasizes the uncertainty that prevails in respect to these meningeal reactions or benign meningitis cases. There is evidently no single cause involved, but he thinks there can be no doubt that an attenuated form of acute poliomyelitis is involved in some of the cases. Lumbar puncture has proved useful. In several cases in his experience a turn for the better followed at once on lumbar puncture.

Masked Varicella.—Wieland urges closer study of the abortive and masked forms of varicella, of which he describes several cases.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

87: 225-474 (Feb. 2) 1924. Dedicated to Hofmeier

*Myoma and Heart. G. Winter.—p. 225.
Prolapse of the Arm. O. v. Franqué.—p. 242.
*Physiocracy and Anthropocracy. K. Rieger.—p. 247.
*Erotic Sensations and Nerve Terminals. M. v. Frey.—p. 256.
*The Liver After Splenectomy. M. B. Schmidt.—p. 261.
Treatment of Breast Cancer. F. König.—p. 270.
The Blood and the Female Genitals. P. Morawitz.—p. 278.
Pharynx Tumor and Pregnancy. P. Manasse.—p. 287.
Pharmacology of the Surviving Human Uterus. F. Flury.—p. 291.
Uterus Gonorrhea Treated by Pust's Capsules. R. Mutschler.—p. 300.
Origin of Congenital Uric Acid Infarcts. H. Rietschel.—p. 309.
Semmelweis. G. Sticker.—p. 314.
Polydactylia. G. Burckhard.—p. 335.
Coincidence of Uterine and Ovarian Cancer. G. Burckhard.—p. 350.
Cyclic Changes in the Female Breast. O. Polano.—p. 363.
Cancer in the Body of the Uterus. W. Schmitt.—p. 373.
A Young Ovarian Pregnancy. H. Krause.—p. 390.
Report of Maternity, 1889-1923. H. Schimmel.—p. 398.
Case of Vulvar Sarcoma. R. Veit.—p. 422.
Outcome of Conservative Versus Radical Treatment of Adnexitis. H. R. Schmidt.—p. 428.
*Biology of the Cervix. C. Dietl.—p. 447.
Temporary Röentgen Amenorrhea. C. J. Gauss.—p. 453.
The Uterine Round Ligament. W. Lubosch.—p. 467.

Myoma and Heart.—Winter contests any direct interrelation between heart disease and myoma, but states that their very frequent coincidence is a natural consequence of some primary causal factor.

Physiocracy Versus Anthropocracy.—Rieger explains these two opposite medical and social trends. The "physiocracy" of François Quesnay denotes a passive tendency, permitting Nature to proceed without technical interference. This mental trend was denounced sixty years ago as medical fatalism by its Hungarian adversary, Semmelweis. He introduced an era of active asepsis. This trend is termed "anthropocracy." It is of paramount importance in psychiatry also to draw the consequences of this fundamental distinction between the two schools. In psychiatry, he says, we are liable to behave according to passive custodial measures, instead of actively interfering, even in cases in which it might be justifiable.

Erotic Sensations and Nerve Terminals.—According to experiments on epicritic sensibility, thermo-esthesia and algesthesia, Frey found that the lust sensation is probably not originated in the superficial nerve terminals, as previously supposed to be located in the so-called genital corpuscles of the Krause or Baglioni type. Even the Vater-Pacini corpuscles may be considered but as a doubtful bio-anatomic substratum for sexual sensations.

The Liver in the Splenectomized.—Based on the supposition that the pulp cells of the spleen are functionally connected with the endothelium of the liver capillaries, Schmidt observed in splenectomized mice a vicarious compensatory change in the liver. In guinea-pigs this reaction was found dubious, and in two human cases of pernicious anemia, necropsy revealed an entire absence of compensation in other organs.

Biology of the Cervix.—Dietl summarizes the results of his researches on cervical secretion. He apparently demonstrated that an amylolytic ferment is produced in the cervix. It is chemically amphoteric, becoming more acid in the premenstrual period. Excessive alkalinity of the secretion abolishes its amylase action.

Zeitschrift für urologische Chirurgie, Berlin

15: 1-130 (Feb. 29) 1924

*"Albumin Calculi." T. Ikoma.—p. 1.
*Hematuria Traceable to Appendicitis. J. G. Gottlieb.—p. 30.
Retroperitoneal Hydatid Cysts. O. Stricker.—p. 50.
*Functional Treatment of Urethral Stricture. B. Goldberg.—p. 61.
*Renal Tuberculosis. R. von Bandel.—p. 72.
Indications, Technic and Care Before and After Suprapubic Prostatectomy. V. Blum.—p. 103.
*Ossification in Abdominal Scars. W. Boss.—p. 114.
Calculus-Catcher for Ureter Calculi. Pflaumer.—p. 122.

"Albumin Stones."—Ikoma succeeded in reproducing in vitro with the products of bacterial metabolism, in a fibrin-containing medium, the comparatively soft concretions sometimes found in human urinary passages. Addition of calcium resulted in actual hard calculi production.

Hematuria in Appendicitis.—Gottlieb reports the case of a lawyer, aged 33, with a long persisting tendency to hematuria, not influenced by reclining. The hematuria and an acute right glomerular nephritis proved to be complications of recurring acute appendicitis—all banished by appendicectomy and decapsulation of the kidney. In thirty-six cases on record of hematuria complicating appendicitis, the hematuria is known to have developed during an attack in seven, following an attack in twelve, and in nine it accompanied chronic appendicitis.

Functional Treatment of Stricture of the Urethra.—Goldberg ascribes the frequent ultimate failures of treatment to the neglect of the main indication with stenosis, namely, to provide free outlet for the urine, either with a retention catheter or suprapubic diversion of the urine. Until this indication has been met, it is futile to attack the stricture directly. Simple dilatation is liable to be followed by a local reaction which increases the difficulty of voiding urine by the natural route. He reviews from various standpoints his 340 cases of urethra stricture.

Renal Tuberculosis.—In Bandel's 25 cases, all were women but 9. The youngest patients were 3 between 10 and 20 and 7 between 20 and 30. Both kidneys were involved in 7 cases. Removal of the more seriously diseased kidney may lengthen life somewhat and make it more endurable. With unilateral tuberculous processes, nephrectomy was followed by recovery in 72 per cent.

Bone Growth in Bladder Incision Wound.—Boss adds to the twenty-five cases of ossification in a laparotomy scar, which he has found recorded, two cases personally observed and one in Gruber's practice in which the ossification occurred in the pyramidalis muscle at the cystotomy incision. He explains this as an atavistic tendency, the ossification corresponding to actual bone growth at these points in certain species of animals.

Zentralblatt für Chirurgie, Leipzig

51: 417-460 (March 15) 1924

Suture of Peritoneum After Laparotomy. H. Kritzler.—p. 418.
Aplasia of the Ascending Colon. A. H. Hofmann.—p. 420.
Diagnostic Maneuvers in Inguinal Hernias. R. Frank.—p. 422.
Idiopathic Cysts in Common Bile Duct. H. Zimmer.—p. 424.
*Surgery of Mastitis and Whitlow. A. Ciminata.—p. 427.
*Osteotomy and Temporary Nailing of the Os Calcis. J. Elsner.—p. 429.

Surgery of Mastitis and Felons.—Ciminata explains that, according to Bier's ideas on regeneration, it seems reasonable to avoid large incisions and refrain from draining and tamponing, since drain and tampon behave like foreign bodies in the wound. Contrariwise, moist dressings have proved beneficial as they stimulate tissue regeneration. In twenty-four cases of mastitis or felons, this type of treatment was advantageously applied.

Nail-Fixation in Operative Correction of Talipes Varus.—Elsner recommends in talipes varus osteotomy on the heel-bone followed by fixation of the two parts in their corrected position. For this latter purpose a surgical nail is driven from behind forward and a plaster bandage applied.

Zentralblatt für Gynäkologie, Leipzig

48: 605-648 (March 15) 1924

*Intra-Uterine Inflation of Tubes. H. Sellheim.—p. 605.
Objections to "Hormonal Sterilization." A. Greil.—p. 613.
Capillary Microscopy. F. Schreiner.—p. 618.
*Transient Postpartum Laryngeal Paralysis. K. Herold.—p. 621.
*Dilatation of Cervix by Artificial Relaxation. E. Moser.—p. 625.
Congenital Scalp Defects. H. O. Neumann.—p. 628.
"Untreated Ectopic Pregnancy." O. Khoór.—p. 634.

Nonoperative Determination of Patency of Fallopian Tubes.—Sellheim confirms the value of intra-uterine inflation of the tubes as the only safe way to ascertain their patency. However, he cites three cases of untoward consequences that have been reported. One case was ascribed to air embolism. He believes that if a well oiled catheter is introduced without wounding or dilating manipulations; if injury of the sex organs is avoided; if the test is not performed during menstrual periods, and if, finally, the intra-abdominal appearance of the insufflated air is carefully listened for with continuous auscultation, immediately stopping the insufflation as soon as a blowing sound is perceived, then this method proves entirely harmless and beneficial as to diagnosis.

Transient Postpartum Paralysis of Recurrent Laryngeal Nerve.—Herold reports a case in which an entirely afebrile paralysis of the right vocal cord developed. The laryngeal paralysis was evidently due to the strain of labor, although this had not been relatively difficult. Since the hoarseness spontaneously disappeared in about two weeks, it is not clear, as yet, whether a circumscribed cerebral edema, a minor paralysis or a peripheral toxic effect was responsible. No other special laryngologic or neurologic causal factor could be ascertained.

Nonmechanical Artificial Dilatation of the Uterine Cervix.—Moser recommends as means to accelerate the dilatation of the cervix, artificial relaxing of the uterine muscle. This is accomplished by injection into the parametrium of 60 c.c. of a weak anesthetic solution in a 0.8 per cent. sodium chlorid solution. Among his fifty cases he succeeded in several instances in completing in a few minutes the whole procedure, the injection into the parametrium, dilatation after the muscular relaxation, and, finally, the curettage—all within ten minutes.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 1001-1116 (March 8) 1924

Chronic Appendicitis Without Acute Phases. Timmer.—p. 1002.
Pregnancy Jaundice. M. Boreel.—p. 1018.
Bradycardia with Arrhythmia. J. T. Peters.—p. 1033.
*Influence of Maternal Hormones. H. C. V. Blouw.—p. 1039.
Present Status of Antiketogenesis. C. van Dam.—p. 1044.

Influence of Maternal Hormones on Mental and Physical Development.—Blouw theorizes that, according as either the spermatozoon or the ovum is substandard, the embryo will develop with more or less of the male or female characters, both mental and physical, of the opposite sex. The primary *anlage* seems to be male. The larger proportion of male embryos compensates for the preponderant influence of the maternal hormones during gestation. At abortions, the average is 160 males to 100 females, and at stillbirths, 120 to 100. Hermaphroditism is encountered four times oftener in boys than in girls, and homosexuality is a mental hermaphroditism.

1: 1117-1264 (March 15) 1924

*Early Signs of Tuberculosis. N. Goudman-Benstz.—p. 1118.
Multiple Syphilitic Thrombo-Arteritis. Lignac and Pot.—p. 1125.
Relation Between Talipes Valgus and Congenital Talipes Calcaneus. H. Timmer.—p. 1134.
*Hippuric Acid and Metabolism. J. P. Hofstee.—p. 1139.
Case of Wilson's Disease. G. C. Bolten.—p. 1145.
The Meinicke Tests for Syphilis. D. E. Cohen.—p. 1154.

Early Signs of Pulmonary Tuberculosis.—Goudman-Benstz stresses the diagnostic import of the auricularis phenomenon, which he found pronounced in 14 per cent. of 346 patients with incipient tuberculous processes in one lung. In 13 of the 49 positive cases, the auditory canal alone was tender. Also of the regional tenderness of the muscles, manifest in 49 per cent. of 520 examined. Also of the twitching of the muscle fibrils on percussion of the focus. This was pronounced in 37 per cent. of the 520. The pupil on that side was dilated in 6 per cent. of 394, and in 6 per cent. that cheek was red. In 3 cases that side of the face was paler. In 1.5 per cent. there was sweating exclusively on that side, stopping abruptly at the median line. The unilateral pupil sign, unilateral blush and unilateral sweating were associated in 4 cases. In 3 per cent. of the 520 examined there was a red line on the gums, but the tuberculosis was advanced in these positive cases. Lateral granular conjunctivitis was found in 27 per cent. of the advanced cases and in 34 per cent. of the incipient forms, but as this occurs in the healthy, it has little diagnostic value. The ferric chlorid skin test over the focus was positive only in 3 of the 520. Subcutaneous injection of 50 c.c. of a 0.7 per cent. saline solution elicited the same response in the tuberculous as in the healthy. The redness after rubbing the skin of the chest persisted much longer over the focus than elsewhere in 19 per cent. of 310 examined, but not in the incipient forms of the lung disease. The regional blood vessels were dilated in 21 per cent. of 520; in 63 of the 114 positive cases the dilated vessels were in the front and side of the chest; pressure from enlarged glands is probably responsible. In 49 per cent. of 520 the regional muscles were tender on percussion; also the second to the seventh thoracic vertebrae in 4 per cent. of 380 tested for this spinalgia. The "dropping shoulder" sign was noted in 8 per cent. of 300, and 19 of the 24 with this sign had an unmistakable catarrhal process at the apex.

Influence of Formation of Hippuric Acid on Metabolism in Man.—Hofstee tabulates the metabolic findings from five patients after ingestion of 10 to 15 gm. of sodium benzoate. They confirm the wide individual differences in glycocoll metabolism in different subjects.

Hygiea, Stockholm

86: 81-112 (Feb. 15) 1924

*Graphic Record of Tremor. N. Stenström.—p. 90.

Registration of Tremor.—Stenström's photographic shadow record of the tremor of the fingers showed an average of 620 movements a minute in forty-nine cases of exophthalmic goiter. Tremor from fatigue resembled this, but tremor of other origins never reached this number of movements.

Ugeskrift for Læger, Copenhagen

86: 243-264 (March 20) 1924

*Syphilitic Heart Disease. H. Jacobæus.—p. 243.
Case of Wilson's Disease in Young Man. E. Rud.—p. 246.
*A Typical Knee Affection. F. Sadolin.—p. 249.
Poisoning from Acetyl-Salicylic Acid. S. Hansen.—p. 249.

Syphilitic Heart Disease.—Jacobæus regards it as very important to combat the asystolia first, then start with mercury, and continue with mild arsphenamin treatment unless sure that cicatricial lesions are not involved. By the time there are murmurs and other symptoms in syphilitic or rheumatic heart disease or tabes, the lesions are usually beyond the reach of arsphenamin and salicylic acid. In a case described, the syphilis had been treated with inunctions alone, and ten years later aortitis developed, with dyspnea, palpitations and dizziness. The man, aged 41, was given 2.45 gm. of arsphenamin in the course of six months (six injections). Then he developed diarrhea, intractable vomiting, enlargement of the liver and jaundice, with fatal collapse the ninth day. In another case, a large aneurysm developed above the right clavicle in the course of a month, thirteen years after papules in the mouth had been the only manifestation of syphilis. Under a single injection of arsphenamin, the aneurysm began to subside, and entirely disappeared under two or three more.

Easily Curable Knee Affection.—Sadolin calls attention to the disturbances liable to result from strain of the inner head of the gastrocnemius muscle from overexertion. Daily massage at this point for five minutes on alternate days cures in three weeks. Otherwise the disability and pain may long persist.